SEQUENCE LISTING

<110> Rouleau, Guy A.
Lafreniere, Ronald G.
Rochefort, Daniel

<120> LOCI FOR IDIOPATHIC GENERALIZED EPILEPSY, MUTATIONS THEREOF AND METHOD USING SAME TO ASSESS, DIAGNOSE, PROGNOSE OR TREAT EPILEPSY

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<150> 60/167,623
<151> 1999-11-26

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Lys Ala Lys Asn Pro Lys Pro Asp Lys Lys Asp Asp Asp Glu Asn Gly
35 40 45

Pro Lys Pro Asn Ser Asp Leu Glu Ala Gly Lys Asn Leu Pro Phe Ile
50 55 60

Tyr Gly Asp Ile Pro Pro Glu Met Val Ser Glu Pro Leu Glu Asp Leu
65 70 75 80

Asp Pro Tyr Tyr Ile Asn Lys Lys Thr Phe Ile Val Leu Asn Lys Gly
85 90 95

Lys Ala Ile Phe Arg Phe Ser Ala Thr Ser Ala Leu Tyr Ile Leu Thr

100 105 110

Pro Phe Asn Pro Leu Arg Lys Ile Ala Ile Lys Ile Leu Val His Ser
115 120 125

Leu Phe Ser Met Leu Ile Met Cys Thr Ile Leu Thr Asn Cys Val Phe
130 135 140

Met Thr Met Ser Asn Pro Pro Asp Trp Thr Lys Asn Val Glu Tyr Thr
145 150 155 160

Phe Thr Gly Ile Tyr Thr Phe Glu Ser Leu Ile Lys Ile Ile Ala Arg
165 170 175

Gly Phe Cys Leu Glu Asp Phe Thr Phe Leu Arg Asp Pro Trp Asn Trp
180 185 190

Leu Asp Phe Thr Val Ile Thr Phe Ala Tyr Val Thr Glu Phe Val Asp
195 200 205

Leu Gly Asn Val Ser Ala Leu Arg Thr Phe Arg Val Leu Arg Ala Leu
210 215 220

Lys Thr Ile Ser Val Ile Pro Gly Leu Lys Thr Ile Val Gly Ala Leu
225 230 235 240

Ile Gln Ser Val Lys Lys Leu Ser Asp Val Met Ile Leu Thr Val Phe
245 250 255

Cys Leu Ser Val Phe Ala Leu Ile Gly Leu Gln Leu Phe Met Gly Asn
260 265 270

Leu Arg Asn Lys Cys Ile Gln Trp Pro Pro Thr Asn Ala Ser Leu Glu
275 280 285

Glu His Ser Ile Glu Lys Asn Ile Thr Val Asn Tyr Asn Gly Thr Leu
290 295 300

Ile Asn Glu Thr Val Phe Glu Phe Asp Trp Lys Ser Tyr Ile Gln Asp
305 310 315 320

Ser Arg Tyr His Tyr Phe Leu Glu Gly Phe Leu Asp Ala Leu Leu Cys
325 330 335

Gly Asn Ser Ser Asp Ala Gly Gln Cys Pro Glu Gly Tyr Met Cys Val
340 345 350

Lys Ala Gly Arg Asn Pro Asn Tyr Gly Tyr Thr Ser Phe Asp Thr Phe
355 360 365

Ser Trp Ala Phe Leu Ser Leu Phe Arg Leu Met Thr Gln Asp Phe Trp
370 375 380

Glu Asn Leu Tyr Gln Leu Thr Leu Arg Ala Ala Gly Lys Thr Tyr Met
385 390 395 400

Ile Phe Phe Val Leu Val Ile Phe Leu Gly Ser Phe Tyr Leu Ile Asn
405 410 415

Leu Ile Leu Ala Val Val Ala Met Ala Tyr Glu Glu Gln Asn Gln Ala
420 425 430

Thr Leu Glu Glu Ala Glu Gln Lys Glu Ala Glu Phe Gln Gln Met Ile
435 440 445

Glu Gln Leu Lys Lys Gln Gln Glu Ala Ala Gln Gln Ala Ala Thr Ala
450 455 460

Thr Ala Ser Glu His Ser Arg Glu Pro Ser Ala Ala Gly Arg Leu Ser
465 470 475 480

Asp Ser Ser Ser Glu Ala Ser Lys Leu Ser Ser Lys Ser Ala Lys Glu
485 490 495

Arg Arg Asn Arg Arg Lys Lys Arg Lys Gln Lys Glu Gln Ser Gly Gly
500 505 510

Glu Glu Lys Asp Glu Asp Glu Phe Gln Lys Ser Glu Ser Glu Asp Ser
515 520 525

Ile Arg Arg Lys Gly Phe Arg Phe Ser Ile Glu Gly Asn Arg Leu Thr
530 535 540

Tyr Glu Lys Arg Tyr Ser Ser Pro His Gln Ser Leu Leu Ser Ile Arg
545 550 555 560

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Gly Ser Leu Phe Ser Pro Arg Arg Asn Ser Arg Thr Ser Leu Phe Ser
                565                 570                 575

Phe Arg Gly Arg Ala Lys Asp Val Gly Ser Glu Asn Asp Phe Ala Asp
            580                 585                 590

Asp Glu His Ser Thr Phe Glu Asp Asn Glu Ser Arg Arg Asp Ser Leu
        595                 600                 605

Phe Val Pro Arg Arg His Gly Glu Arg Arg Asn Ser Asn Leu Ser Gln
    610                 615                 620

Thr Ser Arg Ser Ser Arg Met Leu Ala Val Phe Pro Ala Asn Gly Lys
625                 630                 635                 640

Met His Ser Thr Val Asp Cys Asn Gly Val Val Ser Leu Val Gly Gly
                645                 650                 655

Pro Ser Val Pro Thr Ser Pro Val Gly Gln Leu Leu Pro Glu Val Ile
            660                 665                 670

Ile Asp Lys Pro Ala Thr Asp Asp Asn Gly Thr Thr Thr Glu Thr Glu
        675                 680                 685

Met Arg Lys Arg Arg Ser Ser Ser Phe His Val Ser Met Asp Phe Leu
    690                 695                 700

Glu Asp Pro Ser Gln Arg Gln Arg Ala Met Ser Ile Ala Ser Ile Leu
705                 710                 715                 720

Thr Asn Thr Val Glu Glu Leu Glu Glu Ser Arg Gln Lys Cys Pro Pro
                725                 730                 735

Cys Trp Tyr Lys Phe Ser Asn Ile Phe Leu Ile Trp Asp Cys Ser Pro
            740                 745                 750

Tyr Trp Leu Lys Val Lys His Val Val Asn Leu Val Val Met Asp Pro
        755                 760                 765

Phe Val Asp Leu Ala Ile Thr Ile Cys Ile Val Leu Asn Thr Leu Phe
    770                 775                 780
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Met Ala Met Glu His Tyr Pro Met Thr Asp His Phe Asn Asn Val Leu
785                 790                 795                 800

Thr Val Gly Asn Leu Val Phe Thr Gly Ile Phe Thr Ala Glu Met Phe
                805                 810                 815

Leu Lys Ile Ile Ala Met Asp Pro Tyr Tyr Tyr Phe Gln Glu Gly Trp
            820                 825                 830

Asn Ile Phe Asp Gly Phe Ile Val Thr Leu Ser Leu Val Glu Leu Gly
        835                 840                 845

Leu Ala Asn Val Glu Gly Leu Ser Val Leu Arg Ser Phe Arg Leu Leu
    850                 855                 860

Arg Val Phe Lys Leu Ala Lys Ser Trp Pro Thr Leu Asn Met Leu Ile
865                 870                 875                 880

Lys Ile Ile Gly Asn Ser Val Gly Ala Leu Gly Asn Leu Thr Leu Val
                885                 890                 895

Leu Ala Ile Ile Val Phe Ile Phe Ala Val Val Gly Met Gln Leu Phe
            900                 905                 910

Gly Lys Ser Tyr Lys Asp Cys Val Cys Lys Ile Ala Ser Asp Cys Gln
        915                 920                 925

Leu Pro Arg Trp His Met Asn Asp Phe Phe His Ser Phe Leu Ile Val
    930                 935                 940

Phe Arg Val Leu Cys Gly Glu Trp Ile Glu Thr Met Trp Asp Cys Met
945                 950                 955                 960

Glu Val Ala Gly Gln Ala Met Cys Leu Thr Val Phe Met Met Val Met
                965                 970                 975

Val Ile Gly Asn Leu Val Val Leu Asn Leu Phe Leu Ala Leu Leu Leu
            980                 985                 990

Ser Ser Phe Ser Ala Asp Asn Leu  Ala Ala Thr Asp Asp  Asp Asn Glu
        995                 1000                1005

Met Asn  Asn Leu Gln Ile Ala  Val Asp Arg Met His  Lys Gly Val
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1010 1015 1020

Ala Tyr Val Lys Arg Lys Ile Tyr Glu Phe Ile Gln Gln Ser Phe
1025 1030 1035

Ile Arg Lys Gln Lys Ile Leu Asp Glu Ile Lys Pro Leu Asp Asp
1040 1045 1050

Leu Asn Asn Lys Lys Asp Ser Cys Met Ser Asn His Thr Ala Glu
1055 1060 1065

Ile Gly Lys Asp Leu Asp Tyr Leu Lys Asp Val Asn Gly Thr Thr
1070 1075 1080

Ser Gly Ile Gly Thr Gly Ser Ser Val Glu Lys Tyr Ile Ile Asp
1085 1090 1095

Glu Ser Asp Tyr Met Ser Phe Ile Asn Asn Pro Ser Leu Thr Val
1100 1105 1110

Thr Val Pro Ile Ala Val Gly Glu Ser Asp Phe Glu Asn Leu Asn
1115 1120 1125

Thr Glu Asp Phe Ser Ser Glu Ser Asp Leu Glu Glu Ser Lys Glu
1130 1135 1140

Lys Leu Asn Glu Ser Ser Ser Ser Ser Glu Gly Ser Thr Val Asp
1145 1150 1155

Ile Gly Ala Pro Val Glu Glu Gln Pro Val Val Glu Pro Glu Glu
1160 1165 1170

Thr Leu Glu Pro Glu Ala Cys Phe Thr Glu Gly Cys Val Gln Arg
1175 1180 1185

Phe Lys Cys Cys Gln Ile Asn Val Glu Glu Gly Arg Gly Lys Gln
1190 1195 1200

Trp Trp Asn Leu Arg Arg Thr Cys Phe Arg Ile Val Glu His Asn
1205 1210 1215

Trp Phe Glu Thr Phe Ile Val Phe Met Ile Leu Leu Ser Ser Gly
1220 1225 1230

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Ala Leu  Ala Phe Glu Asp Ile  Tyr Ile Asp Gln Arg  Lys Thr Ile
    1235                1240                1245

Lys Thr  Met Leu Glu Tyr Ala  Asp Lys Val Phe Thr  Tyr Ile Phe
    1250                1255                1260

Ile Leu  Glu Met Leu Leu Lys  Trp Val Ala Tyr Gly  Tyr Gln Thr
    1265                1270                1275

Tyr Phe  Thr Asn Ala Trp Cys  Trp Leu Asp Phe Leu  Ile Val Asp
    1280                1285                1290

Val Ser  Leu Val Ser Leu Thr  Ala Asn Ala Leu Gly  Tyr Ser Glu
    1295                1300                1305

Leu Gly  Ala Ile Lys Ser Leu  Arg Thr Leu Arg Ala  Leu Arg Pro
    1310                1315                1320

Leu Arg  Ala Leu Ser Arg Phe  Glu Gly Met Arg Val  Val Val Asn
    1325                1330                1335

Ala Leu  Leu Gly Ala Ile Pro  Ser Ile Met Asn Val  Leu Leu Val
    1340                1345                1350

Cys Leu  Ile Phe Trp Leu Ile  Phe Ser Ile Met Gly  Val Asn Leu
    1355                1360                1365

Phe Ala  Gly Lys Phe Tyr His  Cys Ile Asn Thr Thr  Thr Gly Asp
    1370                1375                1380

Arg Phe  Asp Ile Glu Asp Val  Asn Asn His Thr Asp  Cys Leu Lys
    1385                1390                1395

Leu Ile  Glu Arg Asn Glu Thr  Ala Arg Trp Lys Asn  Val Lys Val
    1400                1405                1410

Asn Phe  Asp Asn Val Gly Phe  Gly Tyr Leu Ser Leu  Leu Gln Val
    1415                1420                1425

Ala Thr  Phe Lys Gly Trp Met  Asp Ile Met Tyr Ala  Ala Val Asp
    1430                1435                1440
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Ser Arg Asn Val Glu Leu Gln Pro Lys Tyr Glu Glu Ser Leu Tyr
1445 1450 1455

Met Tyr Leu Tyr Phe Val Ile Phe Ile Ile Phe Gly Ser Phe Phe
1460 1465 1470

Thr Leu Asn Leu Phe Ile Gly Val Ile Ile Asp Asn Phe Asn Gln
1475 1480 1485

Gln Lys Lys Lys Phe Gly Gly Gln Asp Ile Phe Met Thr Glu Glu
1490 1495 1500

Gln Lys Lys Tyr Tyr Asn Ala Met Lys Lys Leu Gly Ser Lys Lys
1505 1510 1515

Pro Gln Lys Pro Ile Pro Arg Pro Gly Asn Lys Phe Gln Gly Met
1520 1525 1530

Val Phe Asp Phe Val Thr Arg Gln Val Phe Asp Ile Ser Ile Met
1535 1540 1545

Ile Leu Ile Cys Leu Asn Met Val Thr Met Met Val Glu Thr Asp
1550 1555 1560

Asp Gln Ser Glu Tyr Val Thr Thr Ile Leu Ser Arg Ile Asn Leu
1565 1570 1575

Val Phe Ile Val Leu Phe Thr Gly Glu Cys Val Leu Lys Leu Ile
1580 1585 1590

Ser Leu Arg His Tyr Tyr Phe Thr Ile Gly Trp Asn Ile Phe Asp
1595 1600 1605

Phe Val Val Val Ile Leu Ser Ile Val Gly Met Phe Leu Ala Glu
1610 1615 1620

Leu Ile Glu Lys Tyr Phe Val Ser Pro Thr Leu Phe Arg Val Ile
1625 1630 1635

Arg Leu Ala Arg Ile Gly Arg Ile Leu Arg Leu Ile Lys Gly Ala
1640 1645 1650

Lys Gly Ile Arg Thr Leu Leu Phe Ala Leu Met Met Ser Leu Pro
1655 1660 1665

Ala Leu Phe Asn Ile Gly Leu Leu Leu Phe Leu Val Met Phe Ile
1670 1675 1680

Tyr Ala Ile Phe Gly Met Ser Asn Phe Ala Tyr Val Lys Arg Glu
1685 1690 1695

Val Gly Ile Asp Asp Met Phe Asn Phe Glu Thr Phe Gly Asn Ser
1700 1705 1710

Met Ile Cys Leu Phe Gln Ile Thr Thr Ser Ala Gly Trp Asp Gly
1715 1720 1725

Leu Leu Ala Pro Ile Leu Asn Ser Lys Pro Pro Asp Cys Asp Pro
1730 1735 1740

Asn Lys Val Asn Pro Gly Ser Ser Val Lys Gly Asp Cys Gly Asn
1745 1750 1755

Pro Ser Val Gly Ile Phe Phe Phe Val Ser Tyr Ile Ile Ile Ser
1760 1765 1770

Phe Leu Val Val Val Asn Met Tyr Ile Ala Val Ile Leu Glu Asn
1775 1780 1785

Phe Ser Val Ala Thr Glu Glu Ser Ala Glu Pro Leu Ser Glu Asp
1790 1795 1800

Asp Phe Glu Met Phe Tyr Glu Val Trp Glu Lys Phe Asp Pro Asp
1805 1810 1815

Ala Thr Gln Phe Met Glu Phe Glu Lys Leu Ser Gln Phe Ala Ala
1820 1825 1830

Ala Leu Glu Pro Pro Leu Asn Leu Pro Gln Pro Asn Lys Leu Gln
1835 1840 1845

Leu Ile Ala Met Asp Leu Pro Met Val Ser Gly Asp Arg Ile His
1850 1855 1860

Cys Leu Asp Ile Leu Phe Ala Phe Thr Lys Arg Val Leu Gly Glu

```
    1865                1870                1875

Ser Gly  Glu Met Asp Ala Leu  Arg Ile Gln Met Glu  Glu Arg Phe
    1880                1885                1890

Met Ala  Ser Asn Pro Ser Lys  Val Ser Tyr Gln Pro  Ile Thr Thr
    1895                1900                1905

Thr Leu  Lys Arg Lys Gln Glu  Glu Val Ser Ala Val  Ile Ile Gln
    1910                1915                1920

Arg Ala  Tyr Arg Arg His Leu  Leu Lys Arg Thr Val  Lys Gln Ala
    1925                1930                1935

Ser Phe  Thr Tyr Asn Lys Asn  Lys Ile Lys Gly Gly  Ala Asn Leu
    1940                1945                1950

Leu Ile  Lys Glu Asp Met Ile  Ile Asp Arg Ile Asn  Glu Asn Ser
    1955                1960                1965

Ile Thr  Glu Lys Thr Asp Leu  Thr Met Ser Thr Ala  Ala Cys Pro
    1970                1975                1980

Pro Ser  Tyr Asp Arg Val Thr  Lys Pro Ile Val Glu  Lys His Glu
    1985                1990                1995

Gln Glu  Gly Lys Asp Glu Lys  Ala Lys Gly Lys
    2000                2005
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Phe Thr Arg Glu Ser Leu Ala Ala Ile Glu Arg Arg Ile Ala Glu Glu
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Lys Ala Lys Asn Pro Lys Pro Asp Lys Lys Asp Asp Asp Glu Asn Gly
        35                  40                  45
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Pro Lys Pro Asn Ser Asp Leu Glu Ala Gly Lys Asn Leu Pro Phe Ile
    50                  55                  60

Tyr Gly Asp Ile Pro Pro Glu Met Val Ser Glu Pro Leu Glu Asp Leu
65                  70                  75                  80

Asp Pro Tyr Tyr Ile Asn Lys Lys Thr Phe Ile Val Leu Asn Lys Gly
                85                  90                  95

Lys Ala Ile Phe Arg Phe Ser Ala Thr Ser Ala Leu Tyr Ile Leu Thr
            100                 105                 110

Pro Phe Asn Pro Leu Arg Lys Ile Ala Ile Lys Ile Leu Val His Ser
        115                 120                 125

Leu Phe Ser Met Leu Ile Met Cys Thr Ile Leu Thr Asn Cys Val Phe
    130                 135                 140

Met Thr Met Ser Asn Pro Pro Asp Trp Thr Lys Asn Val Glu Tyr Thr
145                 150                 155                 160

Phe Thr Gly Ile Tyr Thr Phe Glu Ser Leu Ile Lys Ile Ile Ala Arg
                165                 170                 175

Gly Phe Cys Leu Glu Asp Phe Thr Phe Leu Arg Asp Pro Trp Asn Trp
            180                 185                 190

Leu Asp Phe Thr Val Ile Thr Phe Ala Phe Val Thr Glu Phe Val Asn
        195                 200                 205

Leu Gly Asn Phe Ser Ala Leu Arg Thr Phe Arg Val Leu Arg Ala Leu
    210                 215                 220

Lys Thr Ile Ser Val Ile Pro Gly Leu Lys Thr Ile Val Gly Ala Leu
225                 230                 235                 240

Ile Gln Ser Val Lys Lys Leu Ser Asp Val Met Ile Leu Thr Val Phe
                245                 250                 255

Cys Leu Ser Val Phe Ala Leu Ile Gly Leu Gln Leu Phe Met Gly Asn
            260                 265                 270
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Leu Arg Asn Lys Cys Ile Gln Trp Pro Pro Thr Asn Ala Ser Leu Glu
275 280 285

Glu His Ser Ile Glu Lys Asn Ile Thr Val Asn Tyr Asn Gly Thr Leu
290 295 300

Ile Asn Glu Thr Val Phe Glu Phe Asp Trp Lys Ser Tyr Ile Gln Asp
305 310 315 320

Ser Arg Tyr His Tyr Phe Leu Glu Gly Phe Leu Asp Ala Leu Leu Cys
325 330 335

Gly Asn Ser Ser Asp Ala Gly Gln Cys Pro Glu Gly Tyr Met Cys Val
340 345 350

Lys Ala Gly Arg Asn Pro Asn Tyr Gly Tyr Thr Ser Phe Asp Thr Phe
355 360 365

Ser Trp Ala Phe Leu Ser Leu Phe Arg Leu Met Thr Gln Asp Phe Trp
370 375 380

Glu Asn Leu Tyr Gln Leu Thr Leu Arg Ala Ala Gly Lys Thr Tyr Met
385 390 395 400

Ile Phe Phe Val Leu Val Ile Phe Leu Gly Ser Phe Tyr Leu Ile Asn
405 410 415

Leu Ile Leu Ala Val Val Ala Met Ala Tyr Glu Glu Gln Asn Gln Ala
420 425 430

Thr Leu Glu Glu Ala Glu Gln Lys Glu Ala Glu Phe Gln Gln Met Ile
435 440 445

Glu Gln Leu Lys Lys Gln Gln Glu Ala Ala Gln Gln Ala Ala Thr Ala
450 455 460

Thr Ala Ser Glu His Ser Arg Glu Pro Ser Ala Ala Gly Arg Leu Ser
465 470 475 480

Asp Ser Ser Ser Glu Ala Ser Lys Leu Ser Ser Lys Ser Ala Lys Glu
485 490 495

Arg Arg Asn Arg Arg Lys Lys Arg Lys Gln Lys Glu Gln Ser Gly Gly

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            500                 505                 510

Glu Glu Lys Asp Glu Asp Glu Phe Gln Lys Ser Glu Ser Glu Asp Ser
        515                 520                 525

Ile Arg Arg Lys Gly Phe Arg Phe Ser Ile Glu Gly Asn Arg Leu Thr
    530                 535                 540

Tyr Glu Lys Arg Tyr Ser Ser Pro His Gln Ser Leu Leu Ser Ile Arg
545                 550                 555                 560

Gly Ser Leu Phe Ser Pro Arg Arg Asn Ser Arg Thr Ser Leu Phe Ser
                565                 570                 575

Phe Arg Gly Arg Ala Lys Asp Val Gly Ser Glu Asn Asp Phe Ala Asp
            580                 585                 590

Asp Glu His Ser Thr Phe Glu Asp Asn Glu Ser Arg Arg Asp Ser Leu
        595                 600                 605

Phe Val Pro Arg Arg His Gly Glu Arg Arg Asn Ser Asn Leu Ser Gln
    610                 615                 620

Thr Ser Arg Ser Ser Arg Met Leu Ala Val Phe Pro Ala Asn Gly Lys
625                 630                 635                 640

Met His Ser Thr Val Asp Cys Asn Gly Val Val Ser Leu Val Gly Gly
                645                 650                 655

Pro Ser Val Pro Thr Ser Pro Val Gly Gln Leu Leu Pro Glu Val Ile
            660                 665                 670

Ile Asp Lys Pro Ala Thr Asp Asp Asn Gly Thr Thr Thr Glu Thr Glu
        675                 680                 685

Met Arg Lys Arg Arg Ser Ser Ser Phe His Val Ser Met Asp Phe Leu
    690                 695                 700

Glu Asp Pro Ser Gln Arg Gln Arg Ala Met Ser Ile Ala Ser Ile Leu
705                 710                 715                 720

Thr Asn Thr Val Glu Glu Leu Glu Glu Ser Arg Gln Lys Cys Pro Pro
                725                 730                 735
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Cys Trp Tyr Lys Phe Ser Asn Ile Phe Leu Ile Trp Asp Cys Ser Pro
            740                 745                 750

Tyr Trp Leu Lys Val Lys His Val Val Asn Leu Val Val Met Asp Pro
        755                 760                 765

Phe Val Asp Leu Ala Ile Thr Ile Cys Ile Val Leu Asn Thr Leu Phe
    770                 775                 780

Met Ala Met Glu His Tyr Pro Met Thr Asp His Phe Asn Asn Val Leu
785                 790                 795                 800

Thr Val Gly Asn Leu Val Phe Thr Gly Ile Phe Thr Ala Glu Met Phe
                805                 810                 815

Leu Lys Ile Ile Ala Met Asp Pro Tyr Tyr Tyr Phe Gln Glu Gly Trp
            820                 825                 830

Asn Ile Phe Asp Gly Phe Ile Val Thr Leu Ser Leu Val Glu Leu Gly
        835                 840                 845

Leu Ala Asn Val Glu Gly Leu Ser Val Leu Arg Ser Phe Arg Leu Leu
    850                 855                 860

Arg Val Phe Lys Leu Ala Lys Ser Trp Pro Thr Leu Asn Met Leu Ile
865                 870                 875                 880

Lys Ile Ile Gly Asn Ser Val Gly Ala Leu Gly Asn Leu Thr Leu Val
                885                 890                 895

Leu Ala Ile Ile Val Phe Ile Phe Ala Val Val Gly Met Gln Leu Phe
            900                 905                 910

Gly Lys Ser Tyr Lys Asp Cys Val Cys Lys Ile Ala Ser Asp Cys Gln
        915                 920                 925

Leu Pro Arg Trp His Met Asn Asp Phe Phe His Ser Phe Leu Ile Val
    930                 935                 940

Phe Arg Val Leu Cys Gly Glu Trp Ile Glu Thr Met Trp Asp Cys Met
945                 950                 955                 960
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Glu Val Ala Gly Gln Ala Met Cys Leu Thr Val Phe Met Met Val Met
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Val Ile Gly Asn Leu Val Val Leu Asn Leu Phe Leu Ala Leu Leu Leu
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Ser Ser Phe Ser Ala Asp Asn Leu Ala Ala Thr Asp Asp Asp Asn Glu
        995                 1000                1005

Met Asn Asn Leu Gln Ile Ala Val Asp Arg Met His Lys Gly Val
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Ala Tyr Val Lys Arg Lys Ile Tyr Glu Phe Ile Gln Gln Ser Phe
    1025                1030                1035

Ile Arg Lys Gln Lys Ile Leu Asp Glu Ile Lys Pro Leu Asp Asp
    1040                1045                1050

Leu Asn Asn Lys Lys Asp Ser Cys Met Ser Asn His Thr Ala Glu
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Ile Gly Lys Asp Leu Asp Tyr Leu Lys Asp Val Asn Gly Thr Thr
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Ser Gly Ile Gly Thr Gly Ser Ser Val Glu Lys Tyr Ile Ile Asp
    1085                1090                1095

Glu Ser Asp Tyr Met Ser Phe Ile Asn Asn Pro Ser Leu Thr Val
    1100                1105                1110

Thr Val Pro Ile Ala Val Gly Glu Ser Asp Phe Glu Asn Leu Asn
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Thr Glu Asp Phe Ser Ser Glu Ser Asp Leu Glu Glu Ser Lys Glu
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Lys Leu Asn Glu Ser Ser Ser Ser Ser Glu Gly Ser Thr Val Asp
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Ile Gly Ala Pro Val Glu Glu Gln Pro Val Val Glu Pro Glu Glu
    1160                1165                1170
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Thr Leu Glu Pro Glu Ala Cys Phe Thr Glu Gly Cys Val Gln Arg
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Phe Lys Cys Cys Gln Ile Asn Val Glu Glu Gly Arg Gly Lys Gln
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Trp Trp Asn Leu Arg Arg Thr Cys Phe Arg Ile Val Glu His Asn
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Trp Phe Glu Thr Phe Ile Val Phe Met Ile Leu Leu Ser Ser Gly
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Ala Leu Ala Phe Glu Asp Ile Tyr Ile Asp Gln Arg Lys Thr Ile
1235 1240 1245

Lys Thr Met Leu Glu Tyr Ala Asp Lys Val Phe Thr Tyr Ile Phe
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Ile Leu Glu Met Leu Leu Lys Trp Val Ala Tyr Gly Tyr Gln Thr
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Tyr Phe Thr Asn Ala Trp Cys Trp Leu Asp Phe Leu Ile Val Asp
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Val Ser Leu Val Ser Leu Thr Ala Asn Ala Leu Gly Tyr Ser Glu
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Cys Leu Ile Phe Trp Leu Ile Phe Ser Ile Met Gly Val Asn Leu
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Phe Ala Gly Lys Phe Tyr His Cys Ile Asn Thr Thr Thr Gly Asp
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Arg Phe Asp Ile Glu Asp Val Asn Asn His Thr Asp Cys Leu Lys

1385 1390 1395

Leu Ile Glu Arg Asn Glu Thr Ala Arg Trp Lys Asn Val Lys Val
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Ala Thr Phe Lys Gly Trp Met Asp Ile Met Tyr Ala Ala Val Asp
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Ser Arg Asn Val Glu Leu Gln Pro Lys Tyr Glu Glu Ser Leu Tyr
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Met Tyr Leu Tyr Phe Val Ile Phe Ile Ile Phe Gly Ser Phe Phe
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Gln Lys Lys Lys Phe Gly Gly Gln Asp Ile Phe Met Thr Glu Glu
1490 1495 1500

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1595 1600 1605

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Lys Gly Ile Arg Thr Leu Leu Phe Ala Leu Met Met Ser Leu Pro
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Val Gly Ile Asp Asp Met Phe Asn Phe Glu Thr Phe Gly Asn Ser
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Asn Lys Val Asn Pro Gly Ser Ser Val Lys Gly Asp Cys Gly Asn
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Pro Ser Val Gly Ile Phe Phe Phe Val Ser Tyr Ile Ile Ile Ser
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Phe Leu Val Val Val Asn Met Tyr Ile Ala Val Ile Leu Glu Asn
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Phe Ser Val Ala Thr Glu Glu Ser Ala Glu Pro Leu Ser Glu Asp
1790 1795 1800

Asp Phe Glu Met Phe Tyr Glu Val Trp Glu Lys Phe Asp Pro Asp
1805 1810 1815

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Ala Thr  Gln Phe Met Glu Phe  Glu Lys Leu Ser Gln  Phe Ala Ala
    1820                 1825                 1830

Ala Leu  Glu Pro Pro Leu Asn  Leu Pro Gln Pro Asn  Lys Leu Gln
    1835                 1840                 1845

Leu Ile  Ala Met Asp Leu Pro  Met Val Ser Gly Asp  Arg Ile His
    1850                 1855                 1860

Cys Leu  Asp Ile Leu Phe Ala  Phe Thr Lys Arg Val  Leu Gly Glu
    1865                 1870                 1875

Ser Gly  Glu Met Asp Ala Leu  Arg Ile Gln Met Glu  Glu Arg Phe
    1880                 1885                 1890

Met Ala  Ser Asn Pro Ser Lys  Val Ser Tyr Gln Pro  Ile Thr Thr
    1895                 1900                 1905

Thr Leu  Lys Arg Lys Gln Glu  Glu Val Ser Ala Val  Ile Ile Gln
    1910                 1915                 1920

Arg Ala  Tyr Arg Arg His Leu  Leu Lys Arg Thr Val  Lys Gln Ala
    1925                 1930                 1935

Ser Phe  Thr Tyr Asn Lys Asn  Lys Ile Lys Gly Gly  Ala Asn Leu
    1940                 1945                 1950

Leu Ile  Lys Glu Asp Met Ile  Ile Asp Arg Ile Asn  Glu Asn Ser
    1955                 1960                 1965

Ile Thr  Glu Lys Thr Asp Leu  Thr Met Ser Thr Ala  Ala Cys Pro
    1970                 1975                 1980

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gaaattggta tgctatgaaa aaacactgtt actttatcaa atttttgga tgcttgtttt 240

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ggtcatggtg attggaaacc tagcggtatg tacccactta agatatgcat tttggaaata 480

caccagcatg gcacatgtat acatatgtaa ctaacctgca cattgtgcac atgtacccta 540

aaacttaaag tataataaaa aaaaagagta taatttaatg gtgactgttt tgtcaaaaag 600

aaaaacaaac tatgattatt ggtttaaaag tccattacct tggatatatt atcactttaa 660

caacacagca atatabcagt gcccctgcat tttttatacc aaattctatt ttgtcagtca 720

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<213> Homo sapiens

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tattcaacag tccttcatta ggaaacaaaa gattttagat gaaattaaac cacttgatga 540

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<223> N = a, c, t or g

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<223> n = a, c, t or g

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aaattcatag taataatcct tcttggcagg caacttatta ccaaaattaa ggactttact 180

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gagtgcagct tatttagctg ttggtcagct aanataaatc acatataata aaatngcact 420

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agtgtcatgc tttgattata tctgcccaat atntgg 516

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actctaggct tagagagcta tgctagcaag acagagatga gcatagtaat aaaaagacaa 120

gacaaggaca ttgctaaagg atattatgga agcagagaca ctttatctac ttttatttca 180

acactttctg caggctgtgt acaaagattc aagtgttgtc aaatcaatgt ggaagaaggc 240

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taagaagcta atcattaatt tttgcttact attaaatagc ccagaaagtg tagcccttca 600

gcttattcat taacaccaaa ggatgtgaat attcaattac 640

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<211> 607
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<213> Homo sapiens

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<213> Homo sapiens

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agccttatct cgatttgaag ggatgagggt aagaaaaatg aaagaacctg aagtattgta 240

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gaatggcaaa ttcttgcaaa atgctcttta ttgttt 336

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<212> DNA
<213> Homo sapiens

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aaagaatgga aagaccagag attactaggg gaatttttt tctttattaa cagataagaa 180

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<213> Homo sapiens

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<213> Homo sapiens

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85 90 95

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Gly Lys Ala Ile Ser Arg Phe Ser Ala Thr Pro Ala Leu Tyr Ile Leu
            100                 105                 110

Thr Pro Phe Asn Pro Ile Arg Lys Leu Ala Ile Lys Ile Leu Val His
        115                 120                 125

Ser Leu Phe Asn Met Leu Ile Met Cys Thr Ile Leu Thr Asn Cys Val
    130                 135                 140

Phe Met Thr Met Ser Asn Pro Pro Asp Trp Thr Lys Asn Val Glu Tyr
145                 150                 155                 160

Thr Phe Thr Gly Ile Tyr Thr Phe Glu Ser Leu Ile Lys Ile Leu Ala
                165                 170                 175

Arg Gly Phe Cys Leu Glu Asp Phe Thr Phe Leu Arg Asp Pro Trp Asn
            180                 185                 190

Trp Leu Asp Phe Thr Val Ile Thr Phe Ala Tyr Val Thr Glu Phe Val
        195                 200                 205

Asp Leu Gly Asn Val Ser Ala Leu Arg Thr Phe Arg Val Leu Arg Ala
    210                 215                 220

Leu Lys Thr Ile Ser Val Ile Pro Gly Leu Lys Thr Ile Val Gly Ala
225                 230                 235                 240

Leu Ile Gln Ser Val Lys Lys Leu Ser Asp Val Met Ile Leu Thr Val
                245                 250                 255

Phe Cys Leu Ser Val Phe Ala Leu Ile Gly Leu Gln Leu Phe Met Gly
            260                 265                 270

Asn Leu Arg Asn Lys Cys Leu Gln Trp Pro Pro Asp Asn Ser Ser Phe
        275                 280                 285

Glu Ile Asn Ile Thr Ser Phe Phe Asn Asn Ser Leu Asp Gly Asn Gly
    290                 295                 300

Thr Thr Phe Asn Arg Thr Val Ser Ile Phe Asn Trp Asp Glu Tyr Ile
305                 310                 315                 320
```

```
Glu Asp Lys Ser His Phe Tyr Phe Leu Glu Gly Gln Asn Asp Ala Leu
                325                 330                 335

Leu Cys Gly Asn Ser Ser Asp Ala Gly Gln Cys Pro Glu Gly Tyr Ile
            340                 345                 350

Cys Val Lys Ala Gly Arg Asn Pro Asn Tyr Gly Tyr Thr Ser Phe Asp
        355                 360                 365

Thr Phe Ser Trp Ala Phe Leu Ser Leu Phe Arg Leu Met Thr Gln Asp
    370                 375                 380

Phe Trp Glu Asn Leu Tyr Gln Leu Thr Leu Arg Ala Ala Gly Lys Thr
385                 390                 395                 400

Tyr Met Ile Phe Phe Val Leu Val Ile Phe Leu Gly Ser Phe Tyr Leu
                405                 410                 415

Ile Asn Leu Ile Leu Ala Val Val Ala Met Ala Tyr Glu Glu Gln Asn
            420                 425                 430

Gln Ala Thr Leu Glu Glu Ala Glu Gln Lys Glu Ala Glu Phe Gln Gln
        435                 440                 445

Met Leu Glu Gln Leu Lys Lys Gln Gln Glu Glu Ala Gln Ala Ala Ala
    450                 455                 460

Ala Ala Ala Ser Ala Glu Ser Arg Asp Phe Ser Gly Ala Gly Gly Ile
465                 470                 475                 480

Gly Val Phe Ser Glu Ser Ser Ser Val Ala Ser Lys Leu Ser Ser Lys
                485                 490                 495

Ser Glu Lys Glu Leu Lys Asn Arg Arg Lys Lys Lys Lys Gln Lys Glu
            500                 505                 510

Gln Ser Gly Glu Glu Glu Lys Asn Asp Arg Val Leu Lys Ser Glu Ser
        515                 520                 525

Glu Asp Ser Ile Arg Arg Lys Gly Phe Arg Phe Ser Leu Glu Gly Ser
    530                 535                 540

Arg Leu Thr Tyr Glu Lys Arg Phe Ser Ser Pro His Gln Ser Leu Leu
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545                 550                 555                 560

Ser Ile Arg Gly Ser Leu Phe Ser Pro Arg Arg Asn Ser Arg Ala Ser
                565                 570                 575

Leu Phe Ser Phe Arg Gly Arg Ala Lys Asp Ile Gly Ser Glu Asn Asp
            580                 585                 590

Phe Ala Asp Asp Glu His Ser Thr Phe Glu Asp Asn Asp Ser Arg Arg
        595                 600                 605

Asp Ser Leu Phe Val Pro His Arg His Gly Glu Arg Arg His Ser Asn
    610                 615                 620

Val Ser Gln Ala Ser Arg Ala Ser Arg Val Leu Pro Ile Leu Pro Met
625                 630                 635                 640

Asn Gly Lys Met His Ser Ala Val Asp Cys Asn Gly Val Val Ser Leu
                645                 650                 655

Val Gly Gly Pro Ser Thr Leu Thr Ser Ala Gly Gln Leu Leu Pro Glu
            660                 665                 670

Gly Thr Thr Thr Glu Thr Glu Ile Arg Lys Arg Arg Ser Ser Ser Tyr
        675                 680                 685

His Val Ser Met Asp Leu Leu Glu Asp Pro Thr Ser Arg Gln Arg Ala
    690                 695                 700

Met Ser Ile Ala Ser Ile Leu Thr Asn Thr Met Glu Glu Leu Glu Glu
705                 710                 715                 720

Ser Arg Gln Lys Cys Pro Pro Cys Trp Tyr Lys Phe Ala Asn Met Cys
                725                 730                 735

Leu Ile Trp Asp Cys Cys Lys Pro Trp Leu Lys Val Lys His Leu Val
            740                 745                 750

Asn Leu Val Val Met Asp Pro Phe Val Asp Leu Ala Ile Thr Ile Cys
        755                 760                 765

Ile Val Leu Asn Thr Leu Phe Met Ala Met Glu His Tyr Pro Met Thr
    770                 775                 780
```

```
Glu Gln Phe Ser Ser Val Leu Ser Val Gly Asn Leu Val Phe Thr Gly
785                 790                 795                 800

Ile Phe Thr Ala Glu Met Phe Leu Lys Ile Ile Ala Met Asp Pro Tyr
                805                 810                 815

Tyr Tyr Phe Gln Glu Gly Trp Asn Ile Phe Asp Gly Phe Ile Val Ser
            820                 825                 830

Leu Ser Leu Met Glu Leu Gly Leu Ala Asn Val Glu Gly Leu Ser Val
        835                 840                 845

Leu Arg Ser Phe Arg Leu Leu Arg Val Phe Lys Leu Ala Lys Ser Trp
    850                 855                 860

Pro Thr Leu Asn Met Leu Ile Lys Ile Ile Gly Asn Ser Val Gly Ala
865                 870                 875                 880

Leu Gly Asn Leu Thr Leu Val Leu Ala Ile Ile Val Phe Ile Phe Ala
                885                 890                 895

Val Val Gly Met Gln Leu Phe Gly Lys Ser Tyr Lys Glu Cys Val Cys
            900                 905                 910

Lys Ile Ser Asn Asp Cys Glu Leu Pro Arg Trp His Met His Asp Phe
        915                 920                 925

Phe His Ser Phe Leu Ile Val Phe Arg Val Leu Cys Gly Glu Trp Ile
    930                 935                 940

Glu Thr Met Trp Asp Cys Met Glu Val Ala Gly Gln Thr Met Cys Leu
945                 950                 955                 960

Thr Val Phe Met Met Val Met Val Ile Gly Asn Leu Val Val Leu Asn
                965                 970                 975

Leu Phe Leu Ala Leu Leu Leu Ser Ser Phe Ser Ser Asp Asn Leu Ala
            980                 985                 990

Ala Thr Asp Asp Asp Asn Glu Met  Asn Asn Leu Gln Ile  Ala Val Gly
        995                 1000                1005
```

```
Arg Met  Gln Lys Gly Ile Asp  Phe Val Lys Arg Lys  Ile Arg Glu
    1010                1015                1020

Phe Ile  Gln Lys Ala Phe Val  Arg Lys Gln Lys Ala  Leu Asp Glu
    1025                1030                1035

Ile Lys  Pro Leu Glu Asp Leu  Asn Asn Lys Lys Asp  Ser Cys Ile
    1040                1045                1050

Ser Asn  His Thr Thr Ile Glu  Ile Gly Lys Asp Leu  Asn Tyr Leu
    1055                1060                1065

Lys Asp  Gly Asn Gly Thr Thr  Ser Gly Ile Gly Ser  Ser Val Glu
    1070                1075                1080

Lys Tyr  Val Val Asp Glu Ser  Asp Tyr Met Ser Phe  Ile Asn Asn
    1085                1090                1095

Pro Ser  Leu Thr Val Thr Val  Pro Ile Ala Val Gly  Glu Ser Asp
    1100                1105                1110

Phe Glu  Asn Leu Asn Thr Glu  Glu Phe Ser Ser Glu  Ser Asp Met
    1115                1120                1125

Glu Glu  Ser Lys Glu Lys Leu  Asn Ala Thr Ser Ser  Ser Glu Gly
    1130                1135                1140

Ser Thr  Val Asp Ile Gly Ala  Pro Ala Glu Gly Glu  Gln Pro Glu
    1145                1150                1155

Val Glu  Pro Glu Glu Ser Leu  Glu Pro Glu Ala Cys  Phe Thr Glu
    1160                1165                1170

Asp Cys  Val Arg Lys Phe Lys  Cys Cys Gln Ile Ser  Ile Glu Glu
    1175                1180                1185

Gly Lys  Gly Lys Leu Trp Trp  Asn Leu Arg Lys Thr  Cys Tyr Lys
    1190                1195                1200

Ile Val  Glu His Asn Trp Phe  Glu Thr Phe Ile Val  Phe Met Ile
    1205                1210                1215
```

```
Leu Leu  Ser Ser Gly Ala Leu  Ala Phe Glu Asp Ile  Tyr Ile Glu
    1220                 1225                 1230

Gln Arg  Lys Thr Ile Lys Thr  Met Leu Glu Tyr Ala  Asp Lys Val
    1235                 1240                 1245

Phe Thr  Tyr Ile Phe Ile Leu  Glu Met Leu Leu Lys  Trp Val Ala
    1250                 1255                 1260

Tyr Gly  Phe Gln Val Tyr Phe  Thr Asn Ala Trp Cys  Trp Leu Asp
    1265                 1270                 1275

Phe Leu  Ile Val Asp Val Ser  Leu Val Ser Leu Thr  Ala Asn Ala
    1280                 1285                 1290

Leu Gly  Tyr Ser Glu Leu Gly  Ala Ile Lys Ser Leu  Arg Thr Leu
    1295                 1300                 1305

Arg Ala  Leu Arg Pro Leu Arg  Ala Leu Ser Arg Phe  Glu Gly Met
    1310                 1315                 1320

Arg Ala  Val Val Asn Ala Leu  Leu Gly Ala Ile Pro  Ser Ile Met
    1325                 1330                 1335

Asn Val  Leu Leu Val Cys Leu  Ile Phe Trp Leu Ile  Phe Ser Ile
    1340                 1345                 1350

Met Gly  Val Asn Leu Phe Ala  Gly Lys Phe Tyr His  Cys Ile Asn
    1355                 1360                 1365

Tyr Thr  Thr Gly Glu Met Phe  Asp Val Ser Val Val  Asn Asn Tyr
    1370                 1375                 1380

Ser Glu  Cys Lys Ala Leu Ile  Glu Ser Asn Gln Thr  Ala Arg Trp
    1385                 1390                 1395

Lys Asn  Val Lys Val Asn Phe  Asp Asn Val Gly Leu  Gly Tyr Leu
    1400                 1405                 1410

Ser Leu  Leu Gln Val Ala Thr  Phe Lys Gly Trp Met  Asp Ile Met
    1415                 1420                 1425

Tyr Ala  Ala Val Asp Ser Arg  Asn Val Glu Leu Gln  Pro Lys Tyr
```

1430 1435 1440

Glu Asp Asn Leu Tyr Met Tyr Leu Tyr Phe Val Ile Phe Ile Ile
1445 1450 1455

Phe Gly Ser Phe Phe Thr Leu Asn Leu Phe Ile Gly Val Ile Ile
1460 1465 1470

Asp Asn Phe Asn Gln Gln Lys Lys Lys Phe Gly Gly Gln Asp Ile
1475 1480 1485

Phe Met Thr Glu Glu Gln Lys Lys Tyr Tyr Asn Ala Met Lys Lys
1490 1495 1500

Leu Gly Ser Lys Lys Pro Gln Lys Pro Ile Pro Arg Pro Ala Asn
1505 1510 1515

Lys Phe Gln Gly Met Val Phe Asp Phe Val Thr Lys Gln Val Phe
1520 1525 1530

Asp Ile Ser Ile Met Ile Leu Ile Cys Leu Asn Met Val Thr Met
1535 1540 1545

Met Val Glu Thr Asp Asp Gln Ser Gln Glu Met Thr Asn Ile Leu
1550 1555 1560

Tyr Trp Ile Asn Leu Val Phe Ile Val Leu Phe Thr Gly Glu Cys
1565 1570 1575

Val Leu Lys Leu Ile Ser Leu Arg Tyr Tyr Tyr Phe Thr Ile Gly
1580 1585 1590

Trp Asn Ile Phe Asp Phe Val Val Val Ile Leu Ser Ile Val Gly
1595 1600 1605

Met Phe Leu Ala Glu Leu Ile Glu Lys Tyr Phe Val Ser Pro Thr
1610 1615 1620

Leu Phe Arg Val Ile Arg Leu Ala Arg Ile Gly Arg Ile Leu Arg
1625 1630 1635

Leu Ile Lys Gly Ala Lys Gly Ile Arg Thr Leu Leu Phe Ala Leu
1640 1645 1650

```
Met Met Ser Leu Pro Ala Leu Phe Asn Ile Gly Leu Leu Leu Phe
    1655                1660                1665

Leu Val Met Phe Ile Tyr Ala Ile Phe Gly Met Ser Asn Phe Ala
    1670                1675                1680

Tyr Val Lys Arg Glu Val Gly Ile Asp Asp Met Phe Asn Phe Glu
    1685                1690                1695

Thr Phe Gly Asn Ser Met Ile Cys Leu Phe Gln Ile Thr Thr Ser
    1700                1705                1710

Ala Gly Trp Asp Gly Leu Leu Ala Pro Ile Leu Asn Ser Gly Pro
    1715                1720                1725

Pro Asp Cys Asp Pro Asp Lys Asp His Pro Gly Ser Ser Val Lys
    1730                1735                1740

Gly Asp Cys Gly Asn Pro Ser Val Gly Ile Phe Phe Phe Val Ser
    1745                1750                1755

Tyr Ile Ile Ile Ser Phe Leu Val Val Val Asn Met Tyr Ile Ala
    1760                1765                1770

Val Ile Leu Glu Asn Phe Ser Val Ala Thr Glu Glu Ser Ala Glu
    1775                1780                1785

Pro Leu Ser Glu Asp Asp Phe Glu Met Phe Tyr Glu Val Trp Glu
    1790                1795                1800

Lys Phe Asp Pro Asp Ala Thr Gln Phe Ile Glu Phe Ala Lys Leu
    1805                1810                1815

Ser Asp Phe Ala Asp Ala Leu Asp Pro Pro Leu Leu Ile Ala Lys
    1820                1825                1830

Pro Asn Lys Val Gln Leu Ile Ala Met Asp Leu Pro Met Val Ser
    1835                1840                1845

Gly Asp Arg Ile His Cys Leu Asp Ile Leu Phe Ala Phe Thr Lys
    1850                1855                1860
```

```
Arg Val  Leu Gly Glu Ser Gly  Glu Met Asp Ala Leu  Arg Ile Gln
    1865                 1870                 1875

Met Glu  Glu Arg Phe Met Ala  Ser Asn Pro Ser Lys  Val Ser Tyr
    1880                 1885                 1890

Glu Pro  Ile Thr Thr Thr Leu  Lys Arg Lys Gln Glu  Glu Val Ser
    1895                 1900                 1905

Ala Ile  Ile Ile Gln Arg Ala  Tyr Arg Arg Tyr Leu  Leu Lys Gln
    1910                 1915                 1920

Lys Val  Lys Lys Val Ser Ser  Ile Tyr Lys Lys Asp  Lys Gly Lys
    1925                 1930                 1935

Glu Cys  Asp Gly Thr Pro Ile  Lys Glu Asp Thr Leu  Ile Asp Lys
    1940                 1945                 1950

Leu Asn  Glu Asn Ser Thr Pro  Glu Lys Thr Asp Met  Thr Pro Ser
    1955                 1960                 1965

Thr Thr  Ser Pro Pro Ser Tyr  Asp Ser Val Thr Lys  Pro Glu Lys
    1970                 1975                 1980

Glu Lys  Phe Glu Lys Asp Lys  Ser Glu Lys Glu Asp  Lys Gly Lys
    1985                 1990                 1995

Asp Ile  Arg Glu Ser Lys Lys
    2000                 2005
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<210> 36
<211> 2005
<212> PRT
<213> Homo sapiens

<400> 36

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Met Ala Gln Ser Val Leu Val Pro Pro Gly Pro Asp Ser Phe Arg Phe
1               5                  10                  15

Phe Thr Arg Glu Ser Leu Ala Ala Ile Glu Gln Arg Ile Ala Glu Glu
            20                  25                  30

Lys Ala Lys Arg Pro Lys Gln Glu Arg Lys Asp Glu Asp Asp Glu Asn
```

```
        35                  40                  45

Gly Pro Lys Pro Asn Ser Asp Leu Glu Ala Gly Lys Ser Leu Pro Phe
    50                  55                  60

Ile Tyr Gly Asp Ile Pro Pro Glu Met Val Ser Val Pro Leu Glu Asp
65                  70                  75                  80

Leu Asp Pro Tyr Tyr Ile Asn Lys Lys Thr Phe Ile Val Leu Asn Lys
                85                  90                  95

Gly Lys Ala Ile Ser Arg Phe Ser Ala Thr Pro Ala Leu Tyr Ile Leu
            100                 105                 110

Thr Pro Phe Asn Pro Ile Arg Lys Leu Ala Ile Lys Ile Leu Val His
        115                 120                 125

Ser Leu Phe Asn Met Leu Ile Met Cys Thr Ile Leu Thr Asn Cys Val
    130                 135                 140

Phe Met Thr Met Ser Asn Pro Pro Asp Trp Thr Lys Asn Val Glu Tyr
145                 150                 155                 160

Thr Phe Thr Gly Ile Tyr Thr Phe Glu Ser Leu Ile Lys Ile Leu Ala
                165                 170                 175

Arg Gly Phe Cys Leu Glu Asp Phe Thr Phe Leu Arg Asp Pro Trp Asn
            180                 185                 190

Trp Leu Asp Phe Thr Val Ile Thr Phe Ala Tyr Val Thr Glu Phe Val
        195                 200                 205

Asn Leu Gly Asn Val Ser Ala Leu Arg Thr Phe Arg Val Leu Arg Ala
    210                 215                 220

Leu Lys Thr Ile Ser Val Ile Pro Gly Leu Lys Thr Ile Val Gly Ala
225                 230                 235                 240

Leu Ile Gln Ser Val Lys Lys Leu Ser Asp Val Met Ile Leu Thr Val
                245                 250                 255

Phe Cys Leu Ser Val Phe Ala Leu Ile Gly Leu Gln Leu Phe Met Gly
            260                 265                 270
```

Asn Leu Arg Asn Lys Cys Leu Gln Trp Pro Pro Asp Asn Ser Ser Phe
275 280 285

Glu Ile Asn Ile Thr Ser Phe Phe Asn Asn Ser Leu Asp Gly Asn Gly
290 295 300

Thr Thr Phe Asn Arg Thr Val Ser Ile Phe Asn Trp Asp Glu Tyr Ile
305 310 315 320

Glu Asp Lys Ser His Phe Tyr Phe Leu Glu Gly Gln Asn Asp Ala Leu
325 330 335

Leu Cys Gly Asn Ser Ser Asp Ala Gly Gln Cys Pro Glu Gly Tyr Ile
340 345 350

Cys Val Lys Ala Gly Arg Asn Pro Asn Tyr Gly Tyr Thr Ser Phe Asp
355 360 365

Thr Phe Ser Trp Ala Phe Leu Ser Leu Phe Arg Leu Met Thr Gln Asp
370 375 380

Phe Trp Glu Asn Leu Tyr Gln Leu Thr Leu Arg Ala Ala Gly Lys Thr
385 390 395 400

Tyr Met Ile Phe Phe Val Leu Val Ile Phe Leu Gly Ser Phe Tyr Leu
405 410 415

Ile Asn Leu Ile Leu Ala Val Val Ala Met Ala Tyr Glu Glu Gln Asn
420 425 430

Gln Ala Thr Leu Glu Glu Ala Glu Gln Lys Glu Ala Glu Phe Gln Gln
435 440 445

Met Leu Glu Gln Leu Lys Lys Gln Gln Glu Glu Ala Gln Ala Ala Ala
450 455 460

Ala Ala Ala Ser Ala Glu Ser Arg Asp Phe Ser Gly Ala Gly Gly Ile
465 470 475 480

Gly Val Phe Ser Glu Ser Ser Ser Val Ala Ser Lys Leu Ser Ser Lys
485 490 495

Ser Glu Lys Glu Leu Lys Asn Arg Arg Lys Lys Lys Lys Gln Lys Glu
500 505 510

Gln Ser Gly Glu Glu Glu Lys Asn Asp Arg Val Leu Lys Ser Glu Ser
515 520 525

Glu Asp Ser Ile Arg Arg Lys Gly Phe Arg Phe Ser Leu Glu Gly Ser
530 535 540

Arg Leu Thr Tyr Glu Lys Arg Phe Ser Ser Pro His Gln Ser Leu Leu
545 550 555 560

Ser Ile Arg Gly Ser Leu Phe Ser Pro Arg Arg Asn Ser Arg Ala Ser
565 570 575

Leu Phe Ser Phe Arg Gly Arg Ala Lys Asp Ile Gly Ser Glu Asn Asp
580 585 590

Phe Ala Asp Asp Glu His Ser Thr Phe Glu Asp Asn Asp Ser Arg Arg
595 600 605

Asp Ser Leu Phe Val Pro His Arg His Gly Glu Arg Arg His Ser Asn
610 615 620

Val Ser Gln Ala Ser Arg Ala Ser Arg Val Leu Pro Ile Leu Pro Met
625 630 635 640

Asn Gly Lys Met His Ser Ala Val Asp Cys Asn Gly Val Val Ser Leu
645 650 655

Val Gly Gly Pro Ser Thr Leu Thr Ser Ala Gly Gln Leu Leu Pro Glu
660 665 670

Gly Thr Thr Thr Glu Thr Glu Ile Arg Lys Arg Arg Ser Ser Ser Tyr
675 680 685

His Val Ser Met Asp Leu Leu Glu Asp Pro Thr Ser Arg Gln Arg Ala
690 695 700

Met Ser Ile Ala Ser Ile Leu Thr Asn Thr Met Glu Glu Leu Glu Glu
705 710 715 720

Ser Arg Gln Lys Cys Pro Pro Cys Trp Tyr Lys Phe Ala Asn Met Cys
725 730 735

Leu Ile Trp Asp Cys Cys Lys Pro Trp Leu Lys Val Lys His Leu Val
740 745 750

Asn Leu Val Val Met Asp Pro Phe Val Asp Leu Ala Ile Thr Ile Cys
755 760 765

Ile Val Leu Asn Thr Leu Phe Met Ala Met Glu His Tyr Pro Met Thr
770 775 780

Glu Gln Phe Ser Ser Val Leu Ser Val Gly Asn Leu Val Phe Thr Gly
785 790 795 800

Ile Phe Thr Ala Glu Met Phe Leu Lys Ile Ile Ala Met Asp Pro Tyr
805 810 815

Tyr Tyr Phe Gln Glu Gly Trp Asn Ile Phe Asp Gly Phe Ile Val Ser
820 825 830

Leu Ser Leu Met Glu Leu Gly Leu Ala Asn Val Glu Gly Leu Ser Val
835 840 845

Leu Arg Ser Phe Arg Leu Leu Arg Val Phe Lys Leu Ala Lys Ser Trp
850 855 860

Pro Thr Leu Asn Met Leu Ile Lys Ile Ile Gly Asn Ser Val Gly Ala
865 870 875 880

Leu Gly Asn Leu Thr Leu Val Leu Ala Ile Ile Val Phe Ile Phe Ala
885 890 895

Val Val Gly Met Gln Leu Phe Gly Lys Ser Tyr Lys Glu Cys Val Cys
900 905 910

Lys Ile Ser Asn Asp Cys Glu Leu Pro Arg Trp His Met His Asp Phe
915 920 925

Phe His Ser Phe Leu Ile Val Phe Arg Val Leu Cys Gly Glu Trp Ile
930 935 940

Glu Thr Met Trp Asp Cys Met Glu Val Ala Gly Gln Thr Met Cys Leu

945 950 955 960

Thr Val Phe Met Met Val Met Val Ile Gly Asn Leu Val Val Leu Asn
965 970 975

Leu Phe Leu Ala Leu Leu Leu Ser Ser Phe Ser Ser Asp Asn Leu Ala
980 985 990

Ala Thr Asp Asp Asp Asn Glu Met Asn Asn Leu Gln Ile Ala Val Gly
995 1000 1005

Arg Met Gln Lys Gly Ile Asp Phe Val Lys Arg Lys Ile Arg Glu
1010 1015 1020

Phe Ile Gln Lys Ala Phe Val Arg Lys Gln Lys Ala Leu Asp Glu
1025 1030 1035

Ile Lys Pro Leu Glu Asp Leu Asn Asn Lys Lys Asp Ser Cys Ile
1040 1045 1050

Ser Asn His Thr Thr Ile Glu Ile Gly Lys Asp Leu Asn Tyr Leu
1055 1060 1065

Lys Asp Gly Asn Gly Thr Thr Ser Gly Ile Gly Ser Ser Val Glu
1070 1075 1080

Lys Tyr Val Val Asp Glu Ser Asp Tyr Met Ser Phe Ile Asn Asn
1085 1090 1095

Pro Ser Leu Thr Val Thr Val Pro Ile Ala Val Gly Glu Ser Asp
1100 1105 1110

Phe Glu Asn Leu Asn Thr Glu Glu Phe Ser Ser Glu Ser Asp Met
1115 1120 1125

Glu Glu Ser Lys Glu Lys Leu Asn Ala Thr Ser Ser Ser Glu Gly
1130 1135 1140

Ser Thr Val Asp Ile Gly Ala Pro Ala Glu Gly Glu Gln Pro Glu
1145 1150 1155

Val Glu Pro Glu Glu Ser Leu Glu Pro Glu Ala Cys Phe Thr Glu
1160 1165 1170

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Asp Cys  Val Arg Lys Phe Lys  Cys Cys Gln Ile Ser  Ile Glu Glu
    1175                 1180                 1185

Gly Lys  Gly Lys Leu Trp Trp  Asn Leu Arg Lys Thr  Cys Tyr Lys
    1190                 1195                 1200

Ile Val  Glu His Asn Trp Phe  Glu Thr Phe Ile Val  Phe Met Ile
    1205                 1210                 1215

Leu Leu  Ser Ser Gly Ala Leu  Ala Phe Glu Asp Ile  Tyr Ile Glu
    1220                 1225                 1230

Gln Arg  Lys Thr Ile Lys Thr  Met Leu Glu Tyr Ala  Asp Lys Val
    1235                 1240                 1245

Phe Thr  Tyr Ile Phe Ile Leu  Glu Met Leu Leu Lys  Trp Val Ala
    1250                 1255                 1260

Tyr Gly  Phe Gln Val Tyr Phe  Thr Asn Ala Trp Cys  Trp Leu Asp
    1265                 1270                 1275

Phe Leu  Ile Val Asp Val Ser  Leu Val Ser Leu Thr  Ala Asn Ala
    1280                 1285                 1290

Leu Gly  Tyr Ser Glu Leu Gly  Ala Ile Lys Ser Leu  Arg Thr Leu
    1295                 1300                 1305

Arg Ala  Leu Arg Pro Leu Arg  Ala Leu Ser Arg Phe  Glu Gly Met
    1310                 1315                 1320

Arg Ala  Val Val Asn Ala Leu  Leu Gly Ala Ile Pro  Ser Ile Met
    1325                 1330                 1335

Asn Val  Leu Leu Val Cys Leu  Ile Phe Trp Leu Ile  Phe Ser Ile
    1340                 1345                 1350

Met Gly  Val Asn Leu Phe Ala  Gly Lys Phe Tyr His  Cys Ile Asn
    1355                 1360                 1365

Tyr Thr  Thr Gly Glu Met Phe  Asp Val Ser Val Val  Asn Asn Tyr
    1370                 1375                 1380
```

Ser Glu Cys Lys Ala Leu Ile Glu Ser Asn Gln Thr Ala Arg Trp
1385 1390 1395

Lys Asn Val Lys Val Asn Phe Asp Asn Val Gly Leu Gly Tyr Leu
1400 1405 1410

Ser Leu Leu Gln Val Ala Thr Phe Lys Gly Trp Met Asp Ile Met
1415 1420 1425

Tyr Ala Ala Val Asp Ser Arg Asn Val Glu Leu Gln Pro Lys Tyr
1430 1435 1440

Glu Asp Asn Leu Tyr Met Tyr Leu Tyr Phe Val Ile Phe Ile Ile
1445 1450 1455

Phe Gly Ser Phe Phe Thr Leu Asn Leu Phe Ile Gly Val Ile Ile
1460 1465 1470

Asp Asn Phe Asn Gln Gln Lys Lys Lys Phe Gly Gly Gln Asp Ile
1475 1480 1485

Phe Met Thr Glu Glu Gln Lys Lys Tyr Tyr Asn Ala Met Lys Lys
1490 1495 1500

Leu Gly Ser Lys Lys Pro Gln Lys Pro Ile Pro Arg Pro Ala Asn
1505 1510 1515

Lys Phe Gln Gly Met Val Phe Asp Phe Val Thr Lys Gln Val Phe
1520 1525 1530

Asp Ile Ser Ile Met Ile Leu Ile Cys Leu Asn Met Val Thr Met
1535 1540 1545

Met Val Glu Thr Asp Asp Gln Ser Gln Glu Met Thr Asn Ile Leu
1550 1555 1560

Tyr Trp Ile Asn Leu Val Phe Ile Val Leu Phe Thr Gly Glu Cys
1565 1570 1575

Val Leu Lys Leu Ile Ser Leu Arg Tyr Tyr Tyr Phe Thr Ile Gly
1580 1585 1590

Trp Asn Ile Phe Asp Phe Val Val Val Ile Leu Ser Ile Val Gly
1595 1600 1605

Met Phe Leu Ala Glu Leu Ile Glu Lys Tyr Phe Val Ser Pro Thr
1610 1615 1620

Leu Phe Arg Val Ile Arg Leu Ala Arg Ile Gly Arg Ile Leu Arg
1625 1630 1635

Leu Ile Lys Gly Ala Lys Gly Ile Arg Thr Leu Leu Phe Ala Leu
1640 1645 1650

Met Met Ser Leu Pro Ala Leu Phe Asn Ile Gly Leu Leu Leu Phe
1655 1660 1665

Leu Val Met Phe Ile Tyr Ala Ile Phe Gly Met Ser Asn Phe Ala
1670 1675 1680

Tyr Val Lys Arg Glu Val Gly Ile Asp Asp Met Phe Asn Phe Glu
1685 1690 1695

Thr Phe Gly Asn Ser Met Ile Cys Leu Phe Gln Ile Thr Thr Ser
1700 1705 1710

Ala Gly Trp Asp Gly Leu Leu Ala Pro Ile Leu Asn Ser Gly Pro
1715 1720 1725

Pro Asp Cys Asp Pro Asp Lys Asp His Pro Gly Ser Ser Val Lys
1730 1735 1740

Gly Asp Cys Gly Asn Pro Ser Val Gly Ile Phe Phe Phe Val Ser
1745 1750 1755

Tyr Ile Ile Ile Ser Phe Leu Val Val Val Asn Met Tyr Ile Ala
1760 1765 1770

Val Ile Leu Glu Asn Phe Ser Val Ala Thr Glu Glu Ser Ala Glu
1775 1780 1785

Pro Leu Ser Glu Asp Asp Phe Glu Met Phe Tyr Glu Val Trp Glu
1790 1795 1800

Lys Phe Asp Pro Asp Ala Thr Gln Phe Ile Glu Phe Ala Lys Leu

1805 1810 1815

Ser Asp Phe Ala Asp Ala Leu Asp Pro Pro Leu Leu Ile Ala Lys
1820 1825 1830

Pro Asn Lys Val Gln Leu Ile Ala Met Asp Leu Pro Met Val Ser
1835 1840 1845

Gly Asp Arg Ile His Cys Leu Asp Ile Leu Phe Ala Phe Thr Lys
1850 1855 1860

Arg Val Leu Gly Glu Ser Gly Glu Met Asp Ala Leu Arg Ile Gln
1865 1870 1875

Met Glu Glu Arg Phe Met Ala Ser Asn Pro Ser Lys Val Ser Tyr
1880 1885 1890

Glu Pro Ile Thr Thr Thr Leu Lys Arg Lys Gln Glu Glu Val Ser
1895 1900 1905

Ala Ile Ile Ile Gln Arg Ala Tyr Arg Arg Tyr Leu Leu Lys Gln
1910 1915 1920

Lys Val Lys Lys Val Ser Ser Ile Tyr Lys Lys Asp Lys Gly Lys
1925 1930 1935

Glu Cys Asp Gly Thr Pro Ile Lys Glu Asp Thr Leu Ile Asp Lys
1940 1945 1950

Leu Asn Glu Asn Ser Thr Pro Glu Lys Thr Asp Met Thr Pro Ser
1955 1960 1965

Thr Thr Ser Pro Pro Ser Tyr Asp Ser Val Thr Lys Pro Glu Lys
1970 1975 1980

Glu Lys Phe Glu Lys Asp Lys Ser Glu Lys Glu Asp Lys Gly Lys
1985 1990 1995

Asp Ile Arg Glu Ser Lys Lys
2000 2005

<210> 37
<211> 912

<212> DNA
<213> Homo sapiens

<400> 37
gaattcttta tatgggttga atgactttct gacatagcaa ataaaaagca tgaggagaag 60

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aaaagcctgt ggaagatcag ttccacaact gagagctttg ggctgcttca gacatatgtc 180

tgtgtgtacg ctgtgaaggt gtttctcttc acagttcccc gccctctagt ggtagttaca 240

ataatgccat tttgtagtcc ctgtacagga aatgcctctt cttacttcag ttaccagaat 300

ccttttacag gaagttaggt gtggtctttg aaggagaatt aaaaaaaaaa aaaaaaaaaa 360

aaaaaagatt ttttttttt taaagcatga tggaatttta gctgcagtct tcttggggcc 420

agcttatcaa tcccaaactc tgggggtaaa agattctaca ggggtaatgt tttattattc 480

ttattatgct tattctctgt gatgcttctc tacctttaca gtagtagaat ccttggggaa 540

atctgcagag ggaccacttt cattttgaag ctgctggctg catgttttag catgtctctt 600

ctattagaga atccaggcat ggcagtttcc tcccccagtg tgcaaggacc atcttcatgc 660

ctatgtctgt cgctaggcat gagggtctct aggaatgggt gaaaaaaatg agggatgttt 720

tggaggcact ataatactgg ggagggcagt ctgctagctg gtagctgaaa ggtcctggtt 780

tacttcaaca ttttttttaa ataaaactgt gcagtagttt ttgttatttt agggttccct 840

ctgttttatc tggtgtatgc tgcagaagtg aactgcataa cacatttcac tcttagaaat 900

gcattccata ta 912

<210> 38
<211> 722
<212> DNA
<213> Homo sapiens

<400> 38
ctcagtgcat gtaactgaca caatcacctc tatctaatgg tcatgcttct tacctcctgt 60

tctgtagcac tttcttatgc aaggagctaa acagtgatta aaggagcagg atgaaaagat 120

ggcacagtca gtgctggtac cgccaggacc tgacagcttc cgcttcttta ccagggaatc 180

ccttgctgct attgaacaac gcattgcaga agagaaagct aagagaccca aacaggaacg 240

caaggatgag gatgatgaaa atggcccaaa gccaaacagt gacttggaag cagsaaaatc 300

tcttccattt atttatggag acattcctcc agagatggtg tcagtgcccc tggaggatct 360

ggacccctac tatatcaata agaaagtgag ttcttagtca agttgccttc actgcctatt 420

tactaattgg ttctgggcta gtcccaggga tgatggtgaa gaaggctggc ctccttccct 480

ctgtctaaag tatcactaag atgctggatg ggcctgaccg tgtaatggac caatgatcct 540

agaagtcttt tggaagcact catttgaacc tgcatttgtg agacaggcag agaactggtg 600

aggcatcctc cagcgcggga attaaggaag gacaaaagcc tattcacctt cttgaataca 660

aattatatgc ttaaaccagt gtaaattgac cctgattccc taataatgtt gagaagcaaa 720

aa 722

<210> 39
<211> 561
<212> DNA
<213> Homo sapiens

<400> 39
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tgttatacac tattttacag ggcaatattt ataaataatg gttttacttt tctcttaaaa 180

tattcttaat atatattcta agttttgttt tatgtgttgt gttttctttt tcagacgttt 240

atagtattga ataaagggaa agcaatctct cgattcagtg ccacccctgc cctttacatt 300

ttaactccct tcaaccctat tagaaaatta gctattaaga ttttggtaca ttcatatcct 360

ttttcaaatc gtcacttaat atgattttct tctttgacca agttattgag ctacacattt 420

tccaaaatat ctgtggttgg caatgttatg tgttctttct ttttctttcc ttttactcaa 480

tcgttagcat gttgcaaaat gagatcacag gtaagtgaat tactttcccc cgtcttctaa 540

gtgtttcttc tctacccaac t 561

<210> 40
<211> 510
<212> DNA
<213> Homo sapiens

<400> 40
acctaaatag cctcaaaata gttgatggct tggcctgaag acaagatcta aatatgaggt 60

tgctgagtta tagaaatggc aaaaaaaagg gtcaataata gaataataag caacaaaata 120

atagtaagca ctaaagtttt aaacttcatg gtggtgaagg catggtagtg cataaaagta 180

agatttttcc attgaacttt gtcttccttg acgatattct actttattca atatgctcat 240

tatgtgcacg attcttacca actgtgtatt tatgaccatg agtaaccctc cagactggac 300

aaagaatgtg gagtaagtat aaatattttt caatattgac ctccctttat gtttcatatt 360

gtgcttttaa caccttgaga cctcctcaat ttctttaaca aatcatgcta gctactgtta 420

accagaccct gattcaaatt catttctgtc actaaatgtc ttctaggaca aagcttgtag 480

tgggctcact tagttgtgta aattactgca 510

<210> 41
<211> 370
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (293)..(293)
<223> n= a, c, t or g

<400> 41
taagatatgt acttgtaaat taaccactag atttttaatg tgagcttggc tattgtctct 60

caggtatacc tttacaggaa tttatacttt tgaatcactt attaaaatac ttgcaagggg 120

cttttgttta gaagatttca catttttacg ggatccatgg aattggttgg atttcacagt 180

cattactttt gcgtaagtat cttaatacat tttctatcct ggaagagtaa atcactggtg 240

ggagcctata ctatattttc cttggtggct tgccttgaca gaccaagcat ttntcttagt 300

aatcatagtt ttcttccaat caaattatcc agtttggaga aattaggaac tatcatagta 360

aattacatgg 370

<210> 42
<211> 370
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (133)..(133)
<223> n = a, c, t or g

<400> 42
caattagcac tgtaaagtaa taaagtttcc caaataacag agattatgat tgatgacaat 60

gccattttcc tcttaattgg gaaagctgat ggcgacactc atgaaattaa aaaggtcttg 120

atgaaagacc aangaagacg tagatttccc taaattctga ataactctga tttaattcta 180

caggtatgta acagaatttg taaacctagg caatgtttca gctcttcgaa ctttcagagt 240

cttgagagct ttgaaaacta tttctgtaat tccaggtaag aagaaaatgg tataaggtgg 300

taggcccctt atatctccaa ctgtttcttg tgttctgtca ttgtgtttgt gtgtgaaccc 360

cctattacag 370

<210> 43
<211> 410
<212> DNA
<213> Homo sapiens

<400> 43
gtaagaagaa aatggtataa ggtggtaggc cccttatatc tccaactgtt tcttgtgttc 60

tgtcattgtg tttgtgtgtg aacccccctat tacagatatg tgacagagtt tgtggacctg 120

ggcaatgtct cagcgttgag aacattcaga gttctccgag cattgaaaac aatttcagtc 180

attccaggtg agagctaggt taaacaccga ggctgacttt agctacagtg gtgctacaat 240

cacagctttt gtgcagaagc cttgttgcta gttgcatatt gcaaataaat atgtaaaaaa 300

gcaagaattg gtacatcatt ttttggatgg atttgattct ttgcttttta cccgttgctt 360

tctttaaaac tattctaaat cagcctttga gtttaacaag tgttgcatga 410

<210> 44
<211> 1066
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (229)..(229)
<223> n = a, c, t or g

<400> 44
aaagagtgtt tggaaataca catttggttc atttccattc acagttttct aatgaacata 60

caagttctgc tttcattcat tttcaccagc tagtaggctt ttcatgaaaa tgttattcaa 120

tcacaaacat taaactaata ttgttggcat tctgcatgac atttttattt tccaggccaa 180

gctcatgata tttttgccgg taaaatagct gttgagtagt atatttaant tccccccttct 240

gattttgttt gtaggcctga agaccattgt gggggccctg atccagtcag tgaagaagct 300

ttctgatgtc atgatcttga ctgtgttctg tctaagcgtg tttgcgctaa taggattgca 360

gttgttcatg ggcaacctac gaaataaatg tttgcaatgg cctccagata attcttcctt 420

tgaaataaat atcacttcct tctttaacaa ttcattggat gggaatggta ctactttcaa 480

taggacagtg agcatattta actgggatga atatattgag gataaaagta agatatactc 540

tataaaccat taagttgttt agttctctaa atattaaata ttatatataa tggaaattat 600

ctcaatttag atgtgaatca agtgacttag actaatttaa gatgatttaa tacatataaa 660

agagatatca aaggatacct tattctattt ttsttatctg tccattgata tagtaaaagt 720

tctcatttga aaatgtgttg tcttatactc atgttgaaag taatttcata ttatgccata 780

ttaaaaaagg tttatttggt agacattaat caggtttttc agtcatttta ataaataagt 840

cagtagtttg aactattcmg cgtattccac tgaaatgtcg ttaagaagac tgaggggaaa 900

taatttggcc ctatttggtt gatgcaacat atgtattgag tacatatgct atatctgaaa 960

ctagagaaac catttatcaa gatgaaataa gaatttgtgt gctcctcaga aggttaagta 1020

accctgattt agccattcac ttcatccata ttctaattag tcccctt 1066

<210> 45
<211> 385
<212> DNA
<213> Homo sapiens

<400> 45
gttcaattat tgtgaaaaat cttctttagc catatatatt tattagttta tccatctcat 60

tatgattgaa aacatttgtg agctttgcca cctaaacagg gtggctgaag tgttttacag 120

gattttaatg attctttcta ttcctttctc tttaaatagg tcacttttat tttttacagg 180

ggcaaaatga tgctctgctt tgtggcaaca gctcagatgc agggtaagtg tatgcttcct 240

actgagtttc agtccacact gctccatcag tgtcaataac ctgccacctc ccactcatcc 300

agtcccacca ctcctcactc aaaaccctcc ataaattcta cttcacggtg actctcagaa 360

tgaccaggat aagtgtagat tctca 385

<210> 46
<211> 430
<212> DNA
<213> Homo sapiens

<400> 46
tataataatg acaattatga atcacagagg aatccacaaa gtagacctta tagattctgt 60

cattatataa atcagtccac ttagtgctga gttaagtact gggtaaggtg agagaaatcg 120

gctttttttct agtgcctgta taaaacagac attggcatat attaaaacag gaaaaccaat 180

tagcagactt gccgttattg actycctctc tttcctctaa cctaattaca gccagtgtcc 240

tgaaggatac atctgtgtga aggctggtag aaaccccaac tatggctaca cgagctttga 300

caccttttagt tgggcctttt tgtccttatt tcgtctcatg actcaagact tctgggaaaa 360

cctttatcaa ctggtgagaa cagataaaat catttttctg agaatcataa aacaccgaac 420

tcaagagaat 430

<210> 47
<211> 646
<212> DNA
<213> Homo sapiens

<400> 47
tgctgtagaa tattttatta cttagagtgt aagtttgtaa catcctatat aaaatttatt 60

aaaatctctc ttccattttg cagacactac gtgctgctgg gaaaacgtac atgatatttt 120

ttgtgctggt cattttcttg ggctcattct atctaataaa tttgatcttg gctgtggtgg 180

ccatggccta tgaggaacag aatcaggcca cattggaaga ggctgaacag aaggaagctg 240

aatttcagca gatgctcgaa cagttgaaaa agcaacaaga agaagctcag gtatagtgaa 300

caagcatacg gtcctttgtt tttctgtatc taaattcttt aacctaaatg ttgaggtcag 360

tggcaaggta gttgacatta gaaataggtc atatgtgttt ggtaagtgct aggagcctgt 420

ttggttatta agaagttatt actttattgc aatgatctct gtcaatagtg tcaatagtaa 480

tggcatcaaa aaatggataa ttataattgc tttactgaca ttttttttctc ccttgtgact 540

ccttgaggaa attaatgatt aacaaaggcc tcatgtactc aaacttgcag agtagataaa 600

cctacatgtc ctcagttgaa gtattttctt aggggaagag gaattc 646

<210> 48
<211> 711
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (164)..(164)
<223> n = a, c, t or g

<400> 48
tatgtatcat cttccatatg aatgcgcatt ttactctttg attggtctaa taacagtgta 60

ctgtgttcta aaacacagaa taaaatggag aattgttttt caagattatc ttcatgatat 120

tgaagctcaa ttaagcagta acatgataat tatttttaa gatnatatgc aacttcccac 180

atactttgcg cccttctagg cggcagctgc agccgcatct gctgaatcaa gagacttcag 240

tggtgctggt gggataggag ttttttcaga gagttcttca gtagcatcta agttgagctc 300

caaaagtgaa aaagagctga aaaacagaag aaagaaaaag aaacagaaag aacagtctgg 360

agaagaagag aaaaatgaca gagtcctaaa atcggaatct gaagacagca taagaagaaa 420

aggtttccgt ttttccttgg aaggaagtag gctgacatat gaaaagagat tttcttctcc 480

acaccaggta aaaatattaa attacatgaa ttgtgttctc ataaattttt taaaagaata 540

tgccagaatt taatggagag aaaaccgcct tccacctgga tggcacaatg ctttcagagt 600

agtgatgatt atcaagtgtt ttggctatca cttcagagaa tttgtgagtt ttgcaacttt 660

ttggaatccc aggaaggaaa ttttagatcc ctctgggttt ggaaaaattt g 711

<210> 49
<211> 1026
<212> DNA
<213> Homo sapiens

<400> 49
ttatggggac acttctgact atgttgaggt gtgggtaaag taggagaaaa gagagcagaa 60

gatggaaaat ggaggaagga gaaaaagcga gagtgaaata gaaaaggtga accttgtaga 120

aagtgccaaa atgccaccag cagtcatcag aggggtgctt tcttccacat gtccaatgac 180

ttatccttga gtaagtcaat gactatgaca caatgaatca aattctgttt ttcagaatgc 240

cagctcttaa ctctcttcat ctcatttttg tttcttttct tgttattcat agtccttact 300

gagcatccgt ggctcccttt tctctccaag acgcaacagt agggcgagcc ttttcagctt 360

cagaggtcga gcaaaggaca ttggctctga gaatgacttt gctgatgatg agcacagcac 420

ctttgaggac aatgacagcc gaagagactc tctgttcgtg ccgcacagac atggagaacg 480

gcgccacagc aatgtcagcc aggccagccg tgcctccagg gtgctcccca tcctgcccat 540

gaatgggaag atgcatagcg ctgtggactg caatggtgtg gtctccctgg tcgggggccc 600

ttctaccctc acatctgctg ggcagctcct accagaggtg aggccaacyy magattgcag 660

ctgatgtgaa gagagttgtg actggtgcag gcaggagtgy ttttccattt mcacatctaa 720

gaatttkttg agtttsttgc ccaaaggctg ggagtttgtt caatcaagct gttaactgtc 780

ttgtgaaact sttctattca gactttycta caaagtaatt aaaaacctag gttggctgtc 840

agagaatata attagamgtm atctttcatc ayyattacta tggtatgaaa ctcgccaaaa 900

agcaaagcaa caatttatca agcataatgt tygaytaata tagttaaatt aaatccaagg 960

aaattaatgc tcacaaatta ataaaatact taaggatttt gtgattgttg ttcatttaaa 1020

aggaga 1026

<210> 50
<211> 601
<212> DNA
<213> Homo sapiens

<400> 50
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taaacaaccc ccaaataatt atcattccaa caatatctta gtgagctttt tacatctgag 120

aaagcatggt gtatatttag ttaaataaca cctgttgtag gaatgctttg ggctttgctg 180

ctttcaaaaa tagtggttat ttcatctgaa attctacttc tagggcacaa ctactgaaac 240

agaaataaga aagagacggt ccagttctta tcatgtttcc atggatttat tggaagatcc 300

tacatcaagg caaagagcaa tgagtatagc cagtattttg accaacacca tggaaggtat 360

gttaaaagtc ctgcgtcaca gttacttggt gctttcctaa tgatgaaaaa cacttcataa 420

atttcaataa aatacttcct gacttgatat tgtatcatta ttacacattt tactaaataa 480

cagtaaaatc cgtgcataac tcatggattc atatattcca cagatttttt ttttttatat 540

ttagcctgta gaaagctgct gcaaatgtaa ggtatatttg aacaccactt tcataactta 600

a 601

<210> 51
<211> 645
<212> DNA
<213> Homo sapiens

<400> 51
gcttactagc ctttctgtac tgatcctttc tatgacagca aacccattgt aaaattttcc 60

ctgttcctcc agcagattaa cccataatat cttttaacaa ctttagattt tttaaattcc 120

ttttaattta aaccaaatct gcttaataga aagtaagcag ttttcatgag gattctaact 180

ttttttcttc cagaacttga agaatccaga cagaaatgcc caccatgctg gtataaattt 240

gctaatatgt gtttgatttg ggactgttgt aaaccatggt taaaggtgaa acaccttgtc 300

aacctggttg taatggaccc atttgttgac ctggccatca ccatctgcat tgtcttaaat 360

acactcttca tggctatgga gcactatccc atgacggagc agttcagcag tgtactgtct 420

gttggaaacc tggtaagcct cactgagagt ttctcttcct cttgaaagag tttataattg 480

ccttagtgaa ttttacatat tgctctcaaa ttaaatatca actaattggc catgtatatc 540

ttgacatcaa atgtttagca tccctttaa ataacaaaaa aatgttgcta ccatagtgca 600

aaagagtcaa agaatttatg tacaatttga tttagaattg aattt 645

<210> 52
<211> 485
<212> DNA
<213> Homo sapiens

<400> 52
tggcccaaac caatttttaa atcaggaatt taatttwtat attgttggga gttaaattaa 60

gttgctcaat aattattcgt gtttcaakas tatttgctca tataatgaac tacacttctc 120

atttaggtct tcacagggat cttcacagca gaaatgtttc tcaagataat tgccatggat 180

ccatattatt actttcaaga aggctggaat atttttgatg gttttattgt gagccttagt 240

ttaatggaac ttggtttggc aaatgtggaa ggattgtcag ttctccgatc attccggctg 300

gtaaattaac tgggagtgtt cataaaatgt actttrtaat taattagtct tcattctcat 360

ctagtaaaaa tggcaagatt tcccatcatt ataatatatt tgaatacctt ctaaaacaga 420

ttggattgcc ataccaccaa atggtagttt cttcttcatc atagctttaa taaagttcac 480

ttaaa 485

<210> 53
<211> 602
<212> DNA
<213> Homo sapiens

<400> 53
acagatttcc tcctgtgtcc atgtgactaa cccattgtgc acatgtaccc taaaaattag 60

tatataataa taaaataaaa taaaaataaa aataaaaaaa taaaaataaa ataaaattgc 120

agatttttt agaaatgcag agattaacac tgttcttgct tttatttcca gctccgagtt 180

ttcaagttgg caaaatcttg gccaactcta aatatgctaa ttaagatcat tggcaattct 240

gtgggggctc taggaaacct caccttggta ttggccatca tcgtcttcat ttttgctgtg 300

gtcggcatgc agctctttgg taagagctac aaagaatgtg tctgcaagat ttccaatgat 360

tgtgaactcc cacgctggca catgcatgac tttttccact ccttcctgat cgtgttccgc 420

gtgctgtgtg gagagtggat agagaccatg tgggactgta tggaggtcgc tggccaaacc 480

atgtgcctta ctgtcttcat gatggtcatg gtgattggaa atctagtggt atgtagcaaa 540

aacattttcc tcattttcat taaaaataat gtaatcatta aaaagtgttc aactgaagaa 600

ta 602

<210> 54
<211> 803

<212> DNA
<213> Homo sapiens

<400> 54
gtttcattta gcaatgattt cagtattttc tgcaatgact aataagcaaa tagtgataat 60

agtattattt tatattgacc aagcattttt atttcattca ctttttttca gaatagtgta 120

tcatgaatta gcagaaatgc atgttagaat aaaataaggt gtcaagaaca atcttagaaa 180

actaatgatg gaaagcaatt gaagcaatag aatgttttga tcacctgttt ttcctgctgt 240

gtttcaggtt ctgaacctct tcttggcctt gcttttgagt tccttcagtt ctgacaatct 300

tgctgccact gatgatgata acgaaatgaa taatctccag attgctgtgg gaaggatgca 360

gaaaggaatc gattttgtta aaagaaaaat acgtgaattt attcagaaag cctttgttag 420

gaagcagaaa gctttagatg aaattaaacc gcttgaagat ctaaataata aaaaagacag 480

ctgtatttcc aaccatacca ccatagaaat aggcaaagac ctcaattatc tcaaagacgg 540

aaatggaact actagtggca taggcagcag tgtagaaaaa tatgtcgtgg atgaaagtga 600

ttacatgtca tttataaaca accctagcct cactgtgaca gtaccaattg ctgttggaga 660

atctgacttt gaaaatttaa atactgaaga attcagcagc gagtcagata tggaggaaag 720

caaagaggta aaatgttaaa taaggagata ttttggtgta tataatctgt gttaaatatc 780

aggtgtttaa tgcgtgtctc tgt 803

<210> 55
<211> 615
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (90)..(90)
<223> n = a, c, t or g

<220>
<221> misc_feature
<222> (378)..(386)
<223> n = a, c, t or g

<400> 55
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aaaaaaaata ctatggtgtt gtatctaatn ttgtgacccc tgacctttac caaagcggat 120

tggcattatg tttaagttct taattacaga tcaagaaaaa tgcatacaga agatgggggg 180

gggcacacct aattaatttt tatatttaga ttaaagaaaa taattaaatg tgttttttg 240

tgggattgat tttcagaagc taaatgcaac tagttcatct gaaggcagca cggttgatat 300

tggagctccc gccgagggag aacagcctga ggttgaacct gaggaatccc ttgaacctga 360

agcctgtttt acagaagnnn nnnnnnaagc aaaacaataa catatgtggt cttgagtatc 420

ctcttttcta cccatttttt cctatttatt taaatgtctg tttatttgtc taccatctag 480

ttcatctatc tatctgtatc tatctatcta tctatctatc tagtaatcat ctatacctat 540

ccaacaactg tacatttatt tgtttttttt ttttgcattt gctgtttgaa aaaaaatgca 600

acgttttaaa ggcaa 615

<210> 56
<211> 400
<212> DNA
<213> Homo sapiens

<400> 56
gatagctttt gtaagcggaa gctatcttaa aaattaatgt tatttacaat gtattatcag 60

gtaataatgt aaatgaatct cccaccaaca caaatatacc taatcaaaga gtaatttttt 120

gtcttcattt ttttcccaca tattttagac tgtgtacgga agttcaagtg ttgtcagata 180

agcatagaag aaggcaaagg gaaactctgg tggaatttga ggaaaacatg ctataagata 240

gtggagcaca attggttcga aaccttcatt gtcttcatga ttctgctgag cagtggggct 300

ctggtaggtg atgcatgatc cactccttca cctttcatct gaaatctttt ccctttccct 360

tcaatcaact catattaccc acttttaaat taaggtgttt 400

<210> 57
<211> 560
<212> DNA
<213> Homo sapiens

<400> 57
aaattactga aacccttggt tgactgaaat gcccagtcag cagtcattta tgatcagata 60

atgataaagt aaaattcagc catgggaaac attaaacctt ccagccttag gcacctgata 120

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Glu Gly Asn Asn Lys Gly Glu Arg Asp Ser Phe Pro Lys Ser Glu Ser
515 520 525

Glu Asp Ser Val Lys Arg Ser Ser Phe Leu Phe Ser Met Asp Gly Asn
530 535 540

Arg Leu Thr Ser Asp Lys Lys Phe Cys Ser Pro His Gln Ser Leu Leu
545 550 555 560

Ser Ile Arg Gly Ser Leu Phe Ser Pro Arg Arg Asn Ser Lys Thr Ser
565 570 575

Ile Phe Ser Phe Arg Gly Arg Ala Lys Asp Val Gly Ser Glu Asn Asp
580 585 590

Phe Ala Asp Asp Glu His Ser Thr Phe Glu Asp Ser Glu Ser Arg Arg
595 600 605

Asp Ser Leu Phe Val Pro His Arg His Gly Glu Arg Arg Asn Ser Asn
610 615 620

Gly Thr Thr Thr Glu Thr Glu Val Arg Lys Arg Arg Leu Ser Ser Tyr

625 630 635 640

Gln Ile Ser Met Glu Met Leu Glu Asp Ser Ser Gly Arg Gln Arg Ala
645 650 655

Val Ser Ile Ala Ser Ile Leu Thr Asn Thr Met Glu Glu Leu Glu Glu
660 665 670

Ser Arg Gln Lys Cys Pro Pro Cys Trp Tyr Arg Phe Ala Asn Val Phe
675 680 685

Leu Ile Trp Asp Cys Cys Asp Ala Trp Leu Lys Val Lys His Leu Val
690 695 700

Asn Leu Ile Val Met Asp Pro Phe Val Asp Leu Ala Ile Thr Ile Cys
705 710 715 720

Ile Val Leu Asn Thr Leu Phe Met Ala Met Glu His Tyr Pro Met Thr
725 730 735

Glu Gln Phe Ser Ser Val Leu Thr Val Gly Asn Leu Val Phe Thr Gly
740 745 750

Ile Phe Thr Ala Glu Met Val Leu Lys Ile Ile Ala Met Asp Pro Tyr
755 760 765

Tyr Tyr Phe Gln Glu Gly Trp Asn Ile Phe Asp Gly Ile Ile Val Ser
770 775 780

Leu Ser Leu Met Glu Leu Gly Leu Ser Asn Val Glu Gly Leu Ser Val
785 790 795 800

Leu Arg Ser Phe Arg Leu Leu Arg Val Phe Lys Leu Ala Lys Ser Trp
805 810 815

Pro Thr Leu Asn Met Leu Ile Lys Ile Ile Gly Asn Ser Val Gly Ala
820 825 830

Leu Gly Asn Leu Thr Leu Val Leu Ala Ile Ile Val Phe Ile Phe Ala
835 840 845

Val Val Gly Met Gln Leu Phe Gly Lys Ser Tyr Lys Glu Cys Val Cys
850 855 860

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Lys Ile Asn Asp Asp Cys Thr Leu Pro Arg Trp His Met Asn Asp Phe
865                 870                 875                 880

Phe His Ser Phe Leu Ile Val Phe Arg Val Leu Cys Gly Glu Trp Ile
            885                 890                 895

Glu Thr Met Trp Asp Cys Met Glu Val Ala Gly Gln Thr Met Cys Leu
        900                 905                 910

Ile Val Phe Met Leu Val Met Val Ile Gly Asn Leu Val Val Leu Asn
    915                 920                 925

Leu Phe Leu Ala Leu Leu Leu Ser Ser Phe Ser Ser Asp Asn Leu Ala
930                 935                 940

Ala Thr Asp Asp Asp Asn Glu Met Asn Asn Leu Gln Ile Ala Val Gly
945                 950                 955                 960

Arg Met Gln Lys Gly Ile Asp Tyr Val Lys Asn Lys Met Arg Glu Cys
            965                 970                 975

Phe Gln Lys Ala Phe Phe Arg Lys Pro Lys Val Ile Glu Ile His Glu
        980                 985                 990

Gly Asn Lys Ile Asp Ser Cys Met  Ser Asn Asn Thr Gly  Ile Glu Ile
    995                 1000                1005

Ser Lys  Glu Leu Asn Tyr Leu  Arg Asp Gly Asn Gly  Thr Thr Ser
1010                1015                1020

Gly Val  Gly Thr Gly Ser Ser  Val Glu Lys Tyr Val  Ile Asp Glu
1025                1030                1035

Asn Asp  Tyr Met Ser Phe Ile  Asn Asn Pro Ser Leu  Thr Val Thr
1040                1045                1050

Val Pro  Ile Ala Val Gly Glu  Ser Asp Phe Glu Asn  Leu Asn Thr
1055                1060                1065

Glu Glu  Phe Ser Ser Glu Ser  Glu Leu Glu Glu Ser  Lys Glu Lys
1070                1075                1080
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Leu Asn Ala Thr Ser Ser Ser Glu Gly Ser Thr Val Asp Val Val
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Leu Pro Arg Glu Gly Glu Gln Ala Glu Thr Glu Pro Glu Glu Asp
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Leu Lys Pro Glu Ala Cys Phe Thr Glu Gly Cys Ile Lys Lys Phe
1115 1120 1125

Pro Phe Cys Gln Val Ser Thr Glu Glu Gly Lys Gly Lys Ile Trp
1130 1135 1140

Trp Asn Leu Arg Lys Thr Cys Tyr Ser Ile Val Glu His Asn Trp
1145 1150 1155

Phe Glu Thr Phe Ile Val Phe Met Ile Leu Leu Ser Ser Gly Ala
1160 1165 1170

Leu Ala Phe Glu Asp Ile Tyr Ile Glu Gln Arg Lys Thr Ile Lys
1175 1180 1185

Thr Met Leu Glu Tyr Ala Asp Lys Val Phe Thr Tyr Ile Phe Ile
1190 1195 1200

Leu Glu Met Leu Leu Lys Trp Val Ala Tyr Gly Phe Gln Thr Tyr
1205 1210 1215

Phe Thr Asn Ala Trp Cys Trp Leu Asp Phe Leu Ile Val Asp Val
1220 1225 1230

Ser Leu Val Ser Leu Val Ala Asn Ala Leu Gly Tyr Ser Glu Leu
1235 1240 1245

Gly Ala Ile Lys Ser Leu Arg Thr Leu Arg Ala Leu Arg Pro Leu
1250 1255 1260

Arg Ala Leu Ser Arg Phe Glu Gly Met Arg Val Val Val Asn Ala
1265 1270 1275

Leu Val Gly Ala Ile Pro Ser Ile Met Asn Val Leu Leu Val Cys
1280 1285 1290

Leu Ile Phe Trp Leu Ile Phe Ser Ile Met Gly Val Asn Leu Phe
1295 1300 1305

Ala Gly Lys Phe Tyr His Cys Val Asn Met Thr Thr Gly Asn Met
1310 1315 1320

Phe Asp Ile Ser Asp Val Asn Asn Leu Ser Asp Cys Gln Ala Leu
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Gly Lys Gln Ala Arg Trp Lys Asn Val Lys Val Asn Phe Asp Asn
1340 1345 1350

Val Gly Ala Gly Tyr Leu Ala Leu Leu Gln Val Ala Thr Phe Lys
1355 1360 1365

Gly Trp Met Asp Ile Met Tyr Ala Ala Val Asp Ser Arg Asp Val
1370 1375 1380

Lys Leu Gln Pro Val Tyr Glu Glu Asn Leu Tyr Met Tyr Leu Tyr
1385 1390 1395

Phe Val Ile Phe Ile Ile Phe Gly Ser Phe Phe Thr Leu Asn Leu
1400 1405 1410

Phe Ile Gly Val Ile Ile Asp Asn Phe Asn Gln Gln Lys Lys Lys
1415 1420 1425

Phe Gly Gly Gln Asp Ile Phe Met Thr Glu Glu Gln Lys Lys Tyr
1430 1435 1440

Tyr Asn Ala Met Lys Lys Leu Gly Ser Lys Lys Pro Gln Lys Pro
1445 1450 1455

Ile Pro Arg Pro Ala Asn Lys Phe Gln Gly Met Val Phe Asp Phe
1460 1465 1470

Val Thr Arg Gln Val Phe Asp Ile Ser Ile Met Ile Leu Ile Cys
1475 1480 1485

Leu Asn Met Val Thr Met Met Val Glu Thr Asp Asp Gln Gly Lys
1490 1495 1500

Tyr Met Thr Leu Val Leu Ser Arg Ile Asn Leu Val Phe Ile Val

1505 1510 1515

Leu Phe Thr Gly Glu Phe Val Leu Lys Leu Val Ser Leu Arg His
1520 1525 1530

Tyr Tyr Phe Thr Ile Gly Trp Asn Ile Phe Asp Phe Val Val Val
1535 1540 1545

Ile Leu Ser Ile Val Gly Met Phe Leu Ala Glu Met Ile Glu Lys
1550 1555 1560

Tyr Phe Val Ser Pro Thr Leu Phe Arg Val Ile Arg Leu Ala Arg
1565 1570 1575

Ile Gly Arg Ile Leu Arg Leu Ile Lys Gly Ala Lys Gly Ile Arg
1580 1585 1590

Thr Leu Leu Phe Ala Leu Met Met Ser Leu Pro Ala Leu Phe Asn
1595 1600 1605

Ile Gly Leu Leu Leu Phe Leu Val Met Phe Ile Tyr Ala Ile Phe
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Gly Met Ser Asn Phe Ala Tyr Val Lys Lys Glu Ala Gly Ile Asp
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Asp Met Phe Asn Phe Glu Thr Phe Gly Asn Ser Met Ile Cys Leu
1640 1645 1650

Phe Gln Ile Thr Thr Ser Ala Gly Trp Asp Gly Leu Leu Ala Pro
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Ile Leu Asn Ser Ala Pro Pro Asp Cys Asp Pro Asp Thr Ile His
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Pro Gly Ser Ser Val Lys Gly Asp Cys Gly Asn Pro Ser Val Gly
1685 1690 1695

Ile Phe Phe Phe Val Ser Tyr Ile Ile Ile Ser Phe Leu Val Val
1700 1705 1710

Val Asn Ser Tyr Ile Ala Val Ile Leu Glu Asn Phe Ser Val Ala
1715 1720 1725

Thr Glu Glu Ser Ala Glu Pro Leu Ser Glu Asp Asp Phe Glu Met
1730 1735 1740

Phe Tyr Glu Val Trp Glu Lys Phe Asp Pro Asp Ala Thr Gln Phe
1745 1750 1755

Ile Glu Phe Ser Lys Leu Ser Asp Phe Ala Ala Ala Leu Asp Pro
1760 1765 1770

Pro Leu Leu Ile Ala Lys Pro Asn Lys Val Gln Leu Ile Ala Met
1775 1780 1785

Asp Leu Pro Met Val Ser Gly Asp Arg Ile His Cys Leu Asp Ile
1790 1795 1800

Leu Phe Ala Phe Thr Lys Arg Val Leu Gly Glu Ser Gly Glu Met
1805 1810 1815

Asp Ala Leu Arg Ile Gln Met Glu Asp Arg Phe Met Ala Ser Asn
1820 1825 1830

Pro Ser Lys Val Ser Tyr Glu Pro Ile Thr Thr Thr Leu Lys Arg
1835 1840 1845

Lys Gln Glu Glu Val Ser Ala Ala Ile Ile Gln Arg Asn Phe Arg
1850 1855 1860

Cys Tyr Leu Leu Lys Gln Arg Leu Lys Asn Ile Ser Ser Asn Tyr
1865 1870 1875

Asn Lys Glu Ala Ile Lys Gly Arg Ile Asp Leu Pro Ile Lys Gln
1880 1885 1890

Asp Met Ile Ile Asp Lys Leu Asn Gly Asn Ser Thr Pro Glu Lys
1895 1900 1905

Thr Asp Gly Ser Ser Ser Thr Thr Ser Pro Pro Ser Tyr Asp Ser
1910 1915 1920

Val Thr Lys Pro Asp Lys Glu Lys Phe Glu Lys Asp Lys Pro Glu
1925 1930 1935

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    1940                1945                1950


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Lys Ala Lys Lys Pro Lys Lys Glu Gln Asp Asn Asp Asp Glu Asn Lys
        35                  40                  45


Pro Lys Pro Asn Ser Asp Leu Glu Ala Gly Lys Asn Leu Pro Phe Ile
    50                  55                  60


Tyr Gly Asp Ile Pro Pro Glu Met Val Ser Glu Pro Leu Glu Asp Leu
65                  70                  75                  80


Asp Pro Tyr Tyr Ile Asn Lys Lys Thr Phe Ile Val Met Asn Lys Gly
                85                  90                  95


Lys Ala Ile Ser Arg Phe Ser Ala Thr Ser Ala Leu Tyr Ile Leu Thr
            100                 105                 110


Pro Leu Asn Pro Val Arg Lys Ile Ala Xaa Lys Ile Leu Val His Ser
        115                 120                 125


Leu Phe Ser Met Leu Ile Met Cys Thr Ile Leu Thr Asn Cys Val Phe
    130                 135                 140


Met Thr Leu Ser Asn Pro Pro Asp Trp Thr Lys Asn Val Glu Tyr Thr
145                 150                 155                 160
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Phe Thr Gly Ile Tyr Thr Phe Glu Ser Leu Ile Lys Ile Leu Ala Arg
                165                 170                 175

Gly Phe Cys Leu Glu Asp Phe Thr Phe Leu Arg Asp Pro Trp Asn Trp
            180                 185                 190

Leu Asp Phe Ser Val Ile Val Met Ala Tyr Val Thr Glu Phe Val Ser
        195                 200                 205

Leu Gly Asn Val Ser Ala Leu Arg Thr Phe Arg Val Leu Arg Ala Leu
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Lys Thr Ile Ser Val Ile Pro Gly Leu Lys Thr Ile Val Gly Ala Leu
225                 230                 235                 240

Ile Gln Ser Val Lys Lys Leu Ser Asp Val Met Ile Leu Thr Val Phe
                245                 250                 255

Cys Leu Ser Val Phe Ala Leu Ile Gly Leu Gln Leu Phe Met Gly Asn
            260                 265                 270

Leu Arg Asn Lys Cys Leu Gln Trp Pro Pro Ser Asp Ser Ala Phe Glu
        275                 280                 285

Thr Asn Thr Thr Ser Tyr Phe Asn Gly Thr Met Asp Ser Asn Gly Thr
    290                 295                 300

Phe Val Asn Val Thr Met Ser Thr Phe Asn Trp Lys Asp Tyr Ile Gly
305                 310                 315                 320

Asp Asp Ser His Phe Tyr Val Leu Asp Gly Gln Lys Asp Pro Leu Leu
                325                 330                 335

Cys Gly Asn Gly Ser Asp Ala Gly Gln Cys Pro Glu Gly Tyr Ile Cys
            340                 345                 350

Val Lys Ala Gly Arg Asn Pro Asn Tyr Gly Tyr Thr Ser Phe Asp Thr
        355                 360                 365

Phe Ser Trp Ala Phe Leu Ser Leu Phe Arg Leu Met Thr Gln Asp Tyr
    370                 375                 380
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Trp Glu Asn Leu Tyr Gln Leu Thr Leu Arg Ala Ala Gly Lys Thr Tyr
385 390 395 400

Met Ile Phe Phe Val Leu Val Ile Phe Leu Gly Ser Phe Tyr Leu Val
405 410 415

Asn Leu Ile Leu Ala Val Val Ala Met Ala Tyr Glu Gly Gln Asn Gln
420 425 430

Ala Thr Leu Glu Glu Ala Glu Gln Lys Glu Ala Glu Phe Gln Gln Met
435 440 445

Leu Glu Gln Leu Lys Lys Gln Gln Glu Glu Ala Gln Ala Val Ala Ala
450 455 460

Ala Ser Ala Ala Ser Arg Asp Phe Ser Gly Ile Gly Gly Leu Gly Glu
465 470 475 480

Leu Leu Glu Ser Ser Ser Glu Ala Ser Lys Leu Ser Ser Lys Ser Ala
485 490 495

Lys Glu Trp Arg Asn Arg Arg Lys Lys Arg Arg Gln Arg Glu His Leu
500 505 510

Glu Gly Asn Asn Lys Gly Glu Arg Asp Ser Phe Pro Lys Ser Glu Ser
515 520 525

Glu Asp Ser Val Lys Arg Ser Ser Phe Leu Phe Ser Met Asp Gly Asn
530 535 540

Arg Leu Thr Ser Asp Lys Lys Phe Cys Ser Pro His Gln Ser Leu Leu
545 550 555 560

Ser Ile Arg Gly Ser Leu Phe Ser Pro Arg Arg Asn Ser Lys Thr Ser
565 570 575

Ile Phe Ser Phe Arg Gly Arg Ala Lys Asp Val Gly Ser Glu Asn Asp
580 585 590

Phe Ala Asp Asp Glu His Ser Thr Phe Glu Asp Ser Glu Ser Arg Arg
595 600 605

Asp Ser Leu Phe Val Pro His Arg His Gly Glu Arg Arg Asn Ser Asn

610 615 620

Gly Thr Thr Thr Glu Thr Glu Val Arg Lys Arg Arg Leu Ser Ser Tyr
625 630 635 640

Gln Ile Ser Met Glu Met Leu Glu Asp Ser Ser Gly Arg Gln Arg Ala
645 650 655

Val Ser Ile Ala Ser Ile Leu Thr Asn Thr Met Glu Glu Leu Glu Glu
660 665 670

Ser Arg Gln Lys Cys Pro Pro Cys Trp Tyr Arg Phe Ala Asn Val Phe
675 680 685

Leu Ile Trp Asp Cys Cys Asp Ala Trp Leu Lys Val Lys His Leu Val
690 695 700

Asn Leu Ile Val Met Asp Pro Phe Val Asp Leu Ala Ile Thr Ile Cys
705 710 715 720

Ile Val Leu Asn Thr Leu Phe Met Ala Met Glu His Tyr Pro Met Thr
725 730 735

Glu Gln Phe Ser Ser Val Leu Thr Val Gly Asn Leu Val Phe Thr Gly
740 745 750

Ile Phe Thr Ala Glu Met Val Leu Lys Ile Ile Ala Met Asp Pro Tyr
755 760 765

Tyr Tyr Phe Gln Glu Gly Trp Asn Ile Phe Asp Gly Ile Ile Val Ser
770 775 780

Leu Ser Leu Met Glu Leu Gly Leu Ser Asn Val Glu Gly Leu Ser Val
785 790 795 800

Leu Arg Ser Phe Arg Leu Leu Arg Val Phe Lys Leu Ala Lys Ser Trp
805 810 815

Pro Thr Leu Asn Met Leu Ile Lys Ile Ile Gly Asn Ser Val Gly Ala
820 825 830

Leu Gly Asn Leu Thr Leu Val Leu Ala Ile Ile Val Phe Ile Phe Ala
835 840 845

Val Val Gly Met Gln Leu Phe Gly Lys Ser Tyr Lys Glu Cys Val Cys
850 855 860

Lys Ile Asn Asp Asp Cys Thr Leu Pro Arg Trp His Met Asn Asp Phe
865 870 875 880

Phe His Ser Phe Leu Ile Val Phe Arg Val Leu Cys Gly Glu Trp Ile
885 890 895

Glu Thr Met Trp Asp Cys Met Glu Val Ala Gly Gln Thr Met Cys Leu
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Ile Val Phe Met Leu Val Met Val Ile Gly Asn Leu Val Val Leu Asn
915 920 925

Leu Phe Leu Ala Leu Leu Leu Ser Ser Phe Ser Ser Asp Asn Leu Ala
930 935 940

Ala Thr Asp Asp Asp Asn Glu Met Asn Asn Leu Gln Ile Ala Val Gly
945 950 955 960

Arg Met Gln Lys Gly Ile Asp Tyr Val Lys Asn Lys Met Arg Glu Cys
965 970 975

Phe Gln Lys Ala Phe Phe Arg Lys Pro Lys Val Ile Glu Ile His Glu
980 985 990

Gly Asn Lys Ile Asp Ser Cys Met Ser Asn Asn Thr Gly Ile Glu Ile
995 1000 1005

Ser Lys Glu Leu Asn Tyr Leu Arg Asp Gly Asn Gly Thr Thr Ser
1010 1015 1020

Gly Val Gly Thr Gly Ser Ser Val Glu Lys Tyr Val Ile Asp Glu
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Asn Asp Tyr Met Ser Phe Ile Asn Asn Pro Ser Leu Thr Val Thr
1040 1045 1050

Val Pro Ile Ala Val Gly Glu Ser Asp Phe Glu Asn Leu Asn Thr
1055 1060 1065

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Glu Glu  Phe Ser Ser Glu Ser  Glu Leu Glu Glu Ser  Lys Glu Lys
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Leu Asn  Ala Thr Ser Ser Ser  Glu Gly Ser Thr Val  Asp Val Val
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Leu Pro  Arg Glu Gly Glu Gln  Ala Glu Thr Glu Pro  Glu Glu Asp
    1100                1105                1110

Leu Lys  Pro Glu Ala Cys Phe  Thr Glu Gly Cys Ile  Lys Lys Phe
    1115                1120                1125

Pro Phe  Cys Gln Val Ser Thr  Glu Glu Gly Lys Gly  Lys Ile Trp
    1130                1135                1140

Trp Asn  Leu Arg Lys Thr Cys  Tyr Ser Ile Val Glu  His Asn Trp
    1145                1150                1155

Phe Glu  Thr Phe Ile Val Phe  Met Ile Leu Leu Ser  Ser Gly Ala
    1160                1165                1170

Leu Ala  Phe Glu Asp Ile Tyr  Ile Glu Gln Arg Lys  Thr Ile Lys
    1175                1180                1185

Thr Met  Leu Glu Tyr Ala Asp  Lys Val Phe Thr Tyr  Ile Phe Ile
    1190                1195                1200

Leu Glu  Met Leu Leu Lys Trp  Val Ala Tyr Gly Phe  Gln Thr Tyr
    1205                1210                1215

Phe Thr  Asn Ala Trp Cys Trp  Leu Asp Phe Leu Ile  Val Asp Val
    1220                1225                1230

Ser Leu  Val Ser Leu Val Ala  Asn Ala Leu Gly Tyr  Ser Glu Leu
    1235                1240                1245

Gly Ala  Ile Lys Ser Leu Arg  Thr Leu Arg Ala Leu  Arg Pro Leu
    1250                1255                1260

Arg Ala  Leu Ser Arg Phe Glu  Gly Met Arg Val Val  Val Asn Ala
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Leu Ile Phe Trp Leu Ile Phe Ser Ile Met Gly Val Asn Leu Phe
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Ala Gly Lys Phe Tyr His Cys Val Asn Met Thr Thr Gly Asn Met
1310 1315 1320

Phe Asp Ile Ser Asp Val Asn Asn Leu Ser Asp Cys Gln Ala Leu
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Gly Lys Gln Ala Arg Trp Lys Asn Val Lys Val Asn Phe Asp Asn
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Val Gly Ala Gly Tyr Leu Ala Leu Leu Gln Val Ala Thr Phe Lys
1355 1360 1365

Gly Trp Met Asp Ile Met Tyr Ala Ala Val Asp Ser Arg Asp Val
1370 1375 1380

Lys Leu Gln Pro Val Tyr Glu Glu Asn Leu Tyr Met Tyr Leu Tyr
1385 1390 1395

Phe Val Ile Phe Ile Ile Phe Gly Ser Phe Phe Thr Leu Asn Leu
1400 1405 1410

Phe Ile Gly Val Ile Ile Asp Asn Phe Asn Gln Gln Lys Lys Lys
1415 1420 1425

Phe Gly Gly Gln Asp Ile Phe Met Thr Glu Glu Gln Lys Lys Tyr
1430 1435 1440

Tyr Asn Ala Met Lys Lys Leu Gly Ser Lys Lys Pro Gln Lys Pro
1445 1450 1455

Ile Pro Arg Pro Ala Asn Lys Phe Gln Gly Met Val Phe Asp Phe
1460 1465 1470

Val Thr Arg Gln Val Phe Asp Ile Ser Ile Met Ile Leu Ile Cys
1475 1480 1485

Leu Asn Met Val Thr Met Met Val Glu Thr Asp Asp Gln Gly Lys

1490 1495 1500

Tyr Met Thr Leu Val Leu Ser Arg Ile Asn Leu Val Phe Ile Val
1505 1510 1515

Leu Phe Thr Gly Glu Phe Val Leu Lys Leu Val Ser Leu Arg His
1520 1525 1530

Tyr Tyr Phe Thr Ile Gly Trp Asn Ile Phe Asp Phe Val Val Val
1535 1540 1545

Ile Leu Ser Ile Val Gly Met Phe Leu Ala Glu Met Ile Glu Lys
1550 1555 1560

Tyr Phe Val Ser Pro Thr Leu Phe Arg Val Ile Arg Leu Ala Arg
1565 1570 1575

Ile Gly Arg Ile Leu Arg Leu Ile Lys Gly Ala Lys Gly Ile Arg
1580 1585 1590

Thr Leu Leu Phe Ala Leu Met Met Ser Leu Pro Ala Leu Phe Asn
1595 1600 1605

Ile Gly Leu Leu Leu Phe Leu Val Met Phe Ile Tyr Ala Ile Phe
1610 1615 1620

Gly Met Ser Asn Phe Ala Tyr Val Lys Lys Glu Ala Gly Ile Asp
1625 1630 1635

Asp Met Phe Asn Phe Glu Thr Phe Gly Asn Ser Met Ile Cys Leu
1640 1645 1650

Phe Gln Ile Thr Thr Ser Ala Gly Trp Asp Gly Leu Leu Ala Pro
1655 1660 1665

Ile Leu Asn Ser Ala Pro Pro Asp Cys Asp Pro Asp Thr Ile His
1670 1675 1680

Pro Gly Ser Ser Val Lys Gly Asp Cys Gly Asn Pro Ser Val Gly
1685 1690 1695

Ile Phe Phe Phe Val Ser Tyr Ile Ile Ile Ser Phe Leu Val Val
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Val Asn Ser Tyr Ile Ala Val Ile Leu Glu Asn Phe Ser Val Ala
1715 1720 1725

Thr Glu Glu Ser Ala Glu Pro Leu Ser Glu Asp Asp Phe Glu Met
1730 1735 1740

Phe Tyr Glu Val Trp Glu Lys Phe Asp Pro Asp Ala Thr Gln Phe
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Ile Glu Phe Ser Lys Leu Ser Asp Phe Ala Ala Ala Leu Asp Pro
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Pro Leu Leu Ile Ala Lys Pro Asn Lys Val Gln Leu Ile Ala Met
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Asp Leu Pro Met Val Ser Gly Asp Arg Ile His Cys Leu Asp Ile
1790 1795 1800

Leu Phe Ala Phe Thr Lys Arg Val Leu Gly Glu Ser Gly Glu Met
1805 1810 1815

Asp Ala Leu Arg Ile Gln Met Glu Asp Arg Phe Met Ala Ser Asn
1820 1825 1830

Pro Ser Lys Val Ser Tyr Glu Pro Ile Thr Thr Thr Leu Lys Arg
1835 1840 1845

Lys Gln Glu Glu Val Ser Ala Ala Ile Ile Gln Arg Asn Phe Arg
1850 1855 1860

Cys Tyr Leu Leu Lys Gln Arg Leu Lys Asn Ile Ser Ser Asn Tyr
1865 1870 1875

Asn Lys Glu Ala Ile Lys Gly Arg Ile Asp Leu Pro Ile Lys Gln
1880 1885 1890

Asp Met Ile Ile Asp Lys Leu Asn Gly Asn Ser Thr Pro Glu Lys
1895 1900 1905

Thr Asp Gly Ser Ser Ser Thr Thr Ser Pro Pro Ser Tyr Asp Ser
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1940 1945 1950

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aaagaaggca gaggggtgtt ttcttccttc ctctaccagt ttgttcttcc aaagaggcaa 660

atacatacag ggagacatag cacagatgac cttagggaat ggaatgatgc caaaggctgt 720

tgatgtaaga aagagagatt aactcagttt ttttttgtt tttgtttttt tgttgttgtt 780

gttgttgttt tgagacagag tctctctctg tcgcccaggc tggagtgcag tggcatgaac 840

<210> 71
<211> 780
<212> DNA
<213> Homo sapiens

<400> 71
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ataaaattat gtaagaactc tgtataataa gctcacagag tacaagaaag gagaggaaaa 180

aagtaaaaga gaactgcgaa agaactatga gggatttcca aacagcaaaa ttgtcattga 240

agccatgaga aactctactc actaaattct ttaatttctc agcctaccca aatattgggc 300

aaaccctaat tctcttgcag gggaaaagct gagagtctgg aactagccta tcttccgagg 360

acttagagac aacagtatgg gaatttcaac gagacgtttt tactttcttt tgaccaagat 420

tcaaattctt tattccagcc cttgataagt aaataagaag gtaaaggact atttatttgt 480

aaaaagtttt tcatgatttt gtgatggcac cttgttccat atcatctcag ataaatcaga 540

ataatttgtg aaaattactc ggtgatttcc acattagata ttttaaacct aatgttattt 600

ctaaaacaaa aaccaaccag gagaatccaa ttaagtaaaa tgtatgtatt aatataaatt 660

agctattccc atctggaaaa gggcagccat ttctgtgttg aggtgcctca atgatactga 720

ggctgagaca ggttagatga tacaggcata ccattagcag cagactcaat actaacccag 780

<210> 72
<211> 1025
<212> DNA
<213> Homo sapiens

<400> 72
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ctthactggc attactcttt tgctgaaagt atactatatt ttggcttaca gtgtcaaaac 120

agaatttttt aaatgctttt aaaaaatgga caaaattata gatattcttg agtttaaata 180

taatgtttat atattatata tactgtacat tgtagaatgg ctaaatcaaa ctaattaaca 240

ttaagtacag acttttgata gatttatgaa cttggcttat tgagaatgag gttgaatgat 300

gatgttttca agttcaaatg tgtagtgcag tactaaaagc atgacttaat gtttatagct 360

ttaaaaagtt actaaagaat gacattttgg ttgatgttct tatgcccaat cgcttgcttt 420

cctaactctt gtgcaatttt tctttttatt gcaggtaatt cgtatgcaag aagctacacg 480

taattaaatg tgcaggatga aaagatggca caggcactgt tggtaccccc aggacctgaa 540

agcttccgcc tttttactag agaatctctt gctgctatcg aaaaacgtgc tgcagaagag 600

aaagccaaga agcccaaaaa ggaacaagat aatgatgatg agaacaaacc aaagccaaat 660

agtgacttgg aagctggaaa gaaccttcca tttatttatg gagacattcc tccagagatg 720

gtgtcagagc ccctggagga cctggatccc tactatatca ataagaaagt gagtattgat 780

tttagacttc taataaatct ttaatgaaac tcttaactgt aatatacttt tctgggcctt 840

atatacagca tcacaatttt tcttctgtta aagattttat aatactcttc actgtcactt 900

atttttatca caatataata aaacaaacat ttataagaaa tgaagtcaag agttggttac 960

agtcaggaaa tatgaataga tgaatgattt ctacaatttc acagtgataa ttcagatagt 1020

caaaa 1025

<210> 73
<211> 433
<212> DNA
<213> Homo sapiens

<400> 73
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ctccttaaat aagcccatgt ctaatttagt aattttactc gtattttctg tttcagactt 180

ttatagtaat gaataaagga aaggcaattt cccgattcag tgccacctct gccttgtata 240

ttttaactcc actaaaccct gttaggaaaa ttgctabsaa gattttggta cattcatatc 300

cttttaatgt gaattgccta aatgctattt ctaacagttg attttaaaga aaatgtcagt 360

tatattttca agtatctgta aaatttcttt gagattaatg gtaacattgt tagtttaatt 420

catttatttg cat 433

<210> 74
<211> 450
<212> DNA
<213> Homo sapiens

<400> 74
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aacaaataat attaatttca cagtttttgc atcgataaac ttttttgtgt gttttggatc 120

atttataaat ggccatggta acctactaac atttattcct taactataat ctactttatt 180

cagcatgctt atcatgtgca ctattttgac caactgtgta tttatgacct tgagcaaccc 240

tcctgactgg acaaagaatg tagagtaagt aggaataact tctgggaatg agaaatgcac 300

actcaaattc tctagcaatc tccttgtggg tatagcctga cttatggttt ccacttctgt 360

ctaagaaaag ttattttcat aatatgcagc cggtaaggga ggtctttcgg gggagctatt 420

cttctacgag gtaagtattt tcccacaaaa 450

<210> 75
<211> 701
<212> DNA
<213> Homo sapiens

<400> 75
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accagattag attcctaaag aatatatttt ctcttcagtt taactctttg ctcaggcttg 180

taaaactaac taaatgaata gattatttgg taaatagaag taaggaacaa tattttaatg 240

aattgaaaaa ccacaaaagg ataggatttg ctatgattga aaacatttat tttaacagtt 300

caagcaaaat tgttaatttt ggcttggatg tttttcctag gtacacattc actggaatct 360

ataccttga gtcacttata aaaatcttgg caagagggtt ttgcttagaa gattttacgt 420

ttcttcgtga tccatggaac tggctggatt tcagtgtcat tgtgatggcg tgagtaactt 480

tgaaaatttg ataagcgcaa aggagtgaaa atagtcatag tacaaacaag gtctttgtgt 540

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gggttatctt catgtcatat agtctttctc ttcatcaaaa t 701

<210> 76
<211> 286
<212> DNA
<213> Homo sapiens

<400> 76
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aagcctaggc aatgtttcag cccttcgaac tttcagagtc ttgagagctc tgaaaactat 180

ttctgtaatc ccaggtaaga agaaactggt gtaaggtagt aggcccctta tatctccaac 240

ttttcttgtg tgttattgtg tttgtgtgtg aactccccta ttacag 286

<210> 77
<211> 515
<212> DNA
<213> Homo sapiens

<400> 77
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attgtgtttg tgtgtgaact cccctattac agatatgtga cagagtttgt ggacctgggc 120

aatgtctcag cgttgagaac attcagagtt ctccgagcac tgaaaacaat ttcagtcatt 180

ccaggtgaga gctaggttaa acaccgaggt tgactttaat tattgagttt gaaatcaatt 240

tatatgactt acagcattag ccttgttgct tattattaca gttcatcccg gtaaataatg 300

ccaaatgatg tttcaatgtc agtttagctc ctaaaatttt ataaattaca tgcgtattta 360

taaagtcagc ctttgagttt aacagaaaat tgcatgagac atcttcaaaa aatgctaatt 420

tgggcctctt gcgctctctc tctctctttt tcactaccat ggctttacta acagatttgg 480

attttaccat tcgctgcaga tgtagttcaa aaatg 515

<210> 78
<211> 564
<212> DNA
<213> Homo sapiens

<400> 78
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tctaaatagt caagcaatca tttatggggg aaagagaatg tgtgtgacta ttaagaaatc 180

atgatttctg gcactcttcc tcaggtaacc tatagttctc tctctgcagg tttaaagacc 240

attgtggggg ccctgatcca gtcggtaaag aagctttctg atgtgatgat cctgactgtg 300

ttctgtctga gcgtgtttgc tctcattggg ctgcagctgt tcatgggcaa tctgaggaat 360

aaatgtttgc agtggccccc aagcgattct gcttttgaaa ccaacaccac ttcctacttt 420

aatggcacaa tggattcaaa tgggacattt gttaatgtaa caatgagcac atttaactgg 480

aaggataaca ttggagatga cagtaagaag tattacatta tgttaacctt agtgttgctg 540

aatgaatttt caactataaa tagt 564

<210> 79
<211> 497
<212> DNA
<213> Homo sapiens

<400> 79
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tactaatact aatgtgaata ggattaatat gaaataaaat gggtttttt ttgtattaac 120

aggtcacttt tatgttttgg atgggcaaaa agacccttta ctctgtggaa atggttcaga 180

tgcagggtaa gaaacataat atatattttt aagatataga actctttgcg aaaaaaaaaa 240

gtaggtagga aaacaactac atggttatat gtgtagcctt accatgtatg caataaagag 300

cagtgctgct cccctaggaa gtgccttgtc tgccttaccg gattgccact ggtcctaaac 360

tcacagcaat taaaaattat ccctttgtga agacctttcc ccaaaatttc acagttaaga 420

tgttcttaaa ttgatgctcc aatgtgtgaa ggcccagagt ctgtctttgc tgtacatcta 480

tcagagctgt taggaaa 497

<210> 80
<211> 501
<212> DNA
<213> Homo sapiens

<400> 80
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tctaaatgtc trwaaawatt tatttgcatc taaattttct atcggtcttc ctagtgaatt 120

tcatctgata agtttcacgg tgggcaatca cctaaagtgt tctggaaatt aaagcaagat 180

aattcgtcac agatagcagc tttgggtttt gaaaattcct ataagtcaaa taaattgaaa 240

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aggatacatc tgtgtgaagg ctggtcgaaa ccccaactat ggctacacaa gctttgacac 360

ctttagctgg gctttcctgt ctctatttcg actcatgact caagactact gggaaaatct 420

ttaccagttg gtaaggtcca aatgagcatg cataacattt atttttatag acatgtatga 480

aatgaaaagc ataggctgag t 501

<210> 81
<211> 432
<212> DNA
<213> Homo sapiens

<400> 81
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actaaaatac tgatggaatt atccccccatt tcccctagac attacgtgct gctgggaaaa 120

catacatgat atttttttgtc ctggtcattt tcttgggctc attttatttg gtgaatttga 180

tcctggctgt ggtggccatg gcctatgagg ggcagaatca ggccaccttg gaagaagcag 240

aacaaaaaga ggccgaattt cagcagatgc tcgaacagct taaaaagcaa caggaagaag 300

ctcaggtact gagtgataaa mgcaaagatt tatcattatt attmttagtt tctaagtaga 360

aatagtgtta tactatagag ggtagattgg aactgctttt tcattttata tatmggcatt 420

gtcattagac ac 432

<210> 82
<211> 489
<212> DNA
<213> Homo sapiens

<400> 82
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agttgcggca gcatcagctg cttcaagaga tttcagtgga ataggtgggt taggagagct 120

gttggaaagt tcttcagaag catcaaagtt gagttccaaa agtgctaaag aatggaggaa 180

ccgaaggaag aaaagaagac agagagagca ccttgaagga aacaacaaag gagagagaga 240

cagctttccc aaatccgaat ctgaagacag cgtcaaaaga agcagcttcc ttttctccat 300

ggatggaaac agactgacca gtgacaaaaa attctgctcc cctcatcagg tatgattttc 360

tactaagtgc tctggtttct ttgtcattgc tattgctttt tagtttttgt attttgtttt 420

ggtacacttt tgtactatct gtacttcagt tgagggacag ggaactaaca tttaatatag 480

ttgtttaaa 489

<210> 83
<211> 653
<212> DNA
<213> Homo sapiens

<400> 83
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aaaaacactc tttgtactta aatttgcttt aataaaaata tcaaaatata tgtgtcctct 120

ataaatttga ttatccatgt ttaagggcaa gagtatacta actccaaaga aaacagatcc 180

tttaatatta atatttatta ataattgcg ttcttcccct acccccatcc cattcctttc 240

ctttttgctt tctctgcagt ctctcttgag tatccgtggc tccctgtttt ccccaagacg 300

caatagcaaa acaagcattt tcagtttcag aggtcgggca aaggatgttg gatctgaaaa 360

tgactttgct gatgatgaac acagcacatt tgaagacagc gaaagcagga gagactcact 420

gtttgtgccg cacagacatg gagagcgacg caacagtaac gttagtcagg ccagtatgtc 480

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atggtgtggt ttccttggtg ggtggacctt cagctctaac gtcacctact gggcaacttc 600

cccagaggtg ataatagatg acctagctgc tactgacatt attcaccaat ttg 653

<210> 84
<211> 566
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (477)..(477)
<223> n = a, c, t or g

<400> 84
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tgcaaagaaa tgctatgtgg tgttgtatta cttattggga agagtggttt gagccatcag 180

tatttggttt gcagggcacc accactgaaa cggaagtcag aaagagaagg ttaagctctt 240

accagatttc aatggagatg ctggaggatt cctctggaag gcaaagagcc gtgagcatag 300

ccagcattct gaccaacaca atggaaggta agagcaggtc atggaacagc caactttctg 360

tgattatgtg ctttgtgaac tattccttct tttcatagaa ttactgaagt ctgttaccca 420

gatcgaacta tatattagac ctaagaatgt gatatatggt gtacattatc acattgntta 480

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atttcaacac ttgatattat atcaat 566

<210> 85
<211> 748
<212> DNA
<213> Homo sapiens

<400> 85
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cttctcaagt ttcttaagta atatgaactt ctattttcaa atataagcat caattttgtt 180

aaataatgta aaatctacta gcaataataa ctcatttttg ttgttattta ctactcttcc 240

ttgttattgt ccctccagaa cttgaagaat ctagacagaa atgtccgcca tgctggtata 300

gatttgccaa tgtgttcttg atctgggact gctgtgatgc atggttaaaa gtaaaacatc 360

ttgtgaattt aattgttatg gatccatttg ttgatcttgc catcactatt tgcattgtct 420

taaataccct ctttatggcc atggagcact accccatgac tgagcaattc agtagtgtgt 480

tgactgtagg aaacctggta agtacatttg aagtttactt atttactttg gtagatgtgg 540

gagagataga ccaaagggaa agatgtattt gtgctgtgtt gaacccaaaa attatatcct 600

ctttcctcat agaaagaaat atctaaggaa tattacaggg aatctcagag atacagccta 660

aaactcaact ggtatgaatg ctgattgttt aggccaatgt ctgtgctgat tgatcatggt 720

gtcttaccag ttgtaaacgt ctcaaaat 748

<210> 86

<211> 664
<212> DNA
<213> Homo sapiens

<400> 86
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tgcgatcatt cagactggta tctatttata tatatccctg tcgctcattg gcacaacatt 360

tattttgaaa ttgaatcaat gtatatttat ataattatta attttaattt taaatttaca 420

tcaatatgtg acattctaag aaaacatgta aacatccyct ttaaagctaa accattttct 480

aagaatgatg aaagcattca aaatactcta taatgattag gtatgtaggg cacattagaa 540

aacctacaag tactttctaa aactgtgttt taagtttatg aagctttttt ggccttacag 600

tctgtaaaga tacgcaaata aaaatttaga ccccagttaa ttttagcttt ttattaaccc 660

tact 664

<210> 87
<211> 750
<212> DNA
<213> Homo sapiens

<400> 87
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ccacgtgtgg ttctatgata ccacatacta ataaaataat gtctaaaatt atattatgat 180

tactactaac agcatctttt cacttgatta cagcttagag ttttcaagtt ggcaaaatcc 240

tggcccacac taaatatgct aattaagatc attggcaatt ctgtgggggc tctaggaaac 300

ctcaccttgg tgttggccat catcgtcttc atttttgctg tggtcggcat gcagctcttt 360

ggtaagagct acaaagaatg tgtctgcaag atcaatgatg actgtacgct cccacggtgg 420

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agaacaagag cagacagtag ctaggaacgt ggccagatgt agtaaacata tctctggttt 660

atagtaagtg gcctagactg aaatcccccct attagcactc agagaataag caagttattt 720

aacttctcct gggctctggt ttcccatttt 750

<210> 88
<211> 768
<212> DNA
<213> Homo sapiens

<400> 88
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atagtaagca ttcaataaac atttgttgaa ataattttag caaagatcta tgagttccct 120

ttttaggctg ttatttaaat gcatatttca atattaarat aggcattttt ctttttttct 180

tttaggttct gaacctcttt ctggccttat tgttgagttc atttagctca gacaaccttg 240

ctgctactga tgatgacaat gaaatgaata atctgcagat tgcagtagga agaatgcaaa 300

agggaattga ttatgtgaaa aataagatgc gggagtgttt ccaaaaagcc ttttttagaa 360

agccaaaagt tatagaaatc catgaaggca ataagataga cagctgcatg tccaataata 420

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gtgtaggtac tggaagcagt gttgaaaaat acgtaatcga tgaaaatgat tatatgtcat 540

tcataaacaa ccccagcctc accgtcacag tgccaattgc tgttggagag tctgactttg 600

aaaacttaaa tactgaagag ttcagcagtg agtcagaact agaagaaagc aaggaggtaa 660

ggaatgcttt taaatttttt gttccatttc ctatgataac catgtactac agttatttac 720

tattttcatt gtgcttatat gcattatcga aaagcaatga ttgtaagt 768

<210> 89
<211> 471
<212> DNA
<213> Homo sapiens

<400> 89
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ttgaaatggg attttgtttc cagaaattaa atgcaaccag ctcatctgaa ggaagcacag 180

ttgatgttgt tctaccccga gaaggtgaac aagctgaaac tgaacccgaa gaagacctta 240

aaccggaagc ttgttttact gaaggtaaac aagctctgat gtgattaaat acaatctccc 300

cttgttcttt acggagactg aatatgcctc atttaaaaaa aaaaatttag caaacgaggt 360

gtggtggctt atgcctgtaa ccccaaaatt ttgggaggct acggtaggag gattgcttga 420

ccccaggagt ttgagaccac cctgggaaat gtagtaaggc tttgcctcta c 471

<210> 90
<211> 623
<212> DNA
<213> Homo sapiens

<400> 90
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gagtggggaa ggggcaagaa agtttatttt ttcctattta agattaaaat atatttttta 180

attaactata tttsattttt aggatgtatt aaaaagtttc cattctgtca agtaagtaca 240

gaagaaggca aagggaagat ctggtggaat cttcgaaaaa cctgctacag tattgttgag 300

cacaactggt ttgagacttt cattgtgttc atgatccttc tcagtagtgg tgcattggta 360

agtgaaatgc atattggcaa gaatcagatt ctggtgaaat agtttattct ccaaaattac 420

cagatgcaaa cactgagctt cagaatcaaa agaaaaggca tatctgtgtc ttgcagagct 480

tggcacccaa ggtttaacga tgcaaaattc agttctgaac aaatcagcac catgaaacag 540

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tttgcagaga cattctgtaa cca 623

<210> 91
<211> 520
<212> DNA
<213> Homo sapiens

<400> 91
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ttattctttt gtactcacta ttatactaag caatttttc aaatatttag aagaagcaag 120

ccatttaagt aaaataaaat atttttgatt cataggcctt tgaagatata tacattgaac 180

agcgaaagac tatcaaaacc atgctagaat atgctgacaa agtctttacc tatatattca 240

ttctggaaat gcttctcaaa tgggttgctt atggatttca aacatatttc actaatgcct 300

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atgacataat tatgcagtta tttaaacaaa actgtaacat atgcaacaat gaggaatatc 480

tcatgggaaa gagtagagga ggtcctaaac atgggcagtg 520

<210> 92
<211> 595
<212> DNA
<213> Homo sapiens

<400> 92
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attgacacgt gttgataaat atgggcaagt attctggttt cattggttaa aaaaaagcaa 180

tagtatgaga tgagactggc aatataagat gaccccacta tgtggaagat gaaagttgcc 240

aaggtatgtc caaattagta tttagtctgc attaaataga taccacaccc tataccttca 300

gtcaacagtt tatttcttgg tgaactaatt aatttttttt tccttttgta ggtttctttg 360

gttagcctgg tagccaatgc tcttggctac tcagaactcg gtgccatcaa atcattacgg 420

acattaagag ctttaagacc tctaagagcc ttatcccggt ttgaaggcat gagggtaaga 480

agaatagaca ctctaattat tcatgtcaaa aattacatgt aggtaatgat ttagatagaa 540

aagggtgcca tactcttctg atatttattt caatagaaat tacagaatta gaagc 595

<210> 93
<211> 787
<212> DNA
<213> Homo sapiens

<400> 93
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catactgtag catattttgc tttccttaaa accttagctc tttagttgtg tcattgtttg 120

ttttccttca aatatgtgct agaaaaatta gaagaaacaa cttgtccacc tagattttta 180

tttaactctt ttcaagcaca tattaatact aaacaaatac attgaaggaa tggtttccat 240

tcaaaaggtt tgtaagctat gttcccctcg ctgtctcttc taggtggttg tgaatgctct 300

tgttggagca attccctcta tcatgaatgt gctgttggtc tgtctcatct tctggttgat 360

ctttagcatc atgggtgtga atttgtttgc tggcaagttc taccactgtg ttaacatgac 420

aacgggtaac atgtttgaca ttagtgatgt taacaatttg agtgactgtc aggctcttgg 480

caagcaagct cggtggaaaa acgtgaaagt aaactttgat aatgttggcg ctggctatct 540

tgcactgctt caagtggtaa gtggctactg tacgagtttt gaaaaagttt tcaagatgtt 600

tcaaggaaga ttatttccct gatgttcttc gtttgaatga ctaacatttg acagcatgaa 660

aaaaagttaa tgataacacc tataatatca gcttgaattg atcataaaaa agatgttaca 720

attattttat aatgtatttt ccttagtgtt aagcttttag tatgttttaa tgtgatttta 780

tatttct 787

<210> 94
<211> 438
<212> DNA
<213> Homo sapiens

<400> 94
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tttcatctgg ttaaatgtca ttgttaggtg aaatttttat gaacaattca aatatatgtt 180

atttacaggc cacatttaaa ggctggatgg atattatgta tgcagctgtt gattcacgag 240

atgtaagtat cactcaaata ttatttatag gttctagatt tcttatggtg aatattggtg 300

gtaatttaaa cactgataca tccaaaattc tatattagaa catttaatat tgcatataaa 360

aaatgaacag tctgcttcaa tatagatgat gcttgattaa tgtgtgccta atatacaata 420

tgtagctaat atgaaacg 438

<210> 95
<211> 637
<212> DNA
<213> Homo sapiens

<400> 95
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actagatcat actagtttta aaaaattgtt tttgtagaac aatatctcag ggtaaggcaa 120

aagtagcact gtattaagta acagcactca ataaattact gatttagtgt aagtatttat 180

agtatttttc atattattta atattttcaa tatcatttag gttaaacttc agcctgtata 240

tgaagaaaat ctgtacatgt atttatactt tgtcatcttt atcatctttg ggtcattctt 300

cactctgaat ctattcattg gtgtcatcat agataacttc aaccagcaga aaaagaagat 360

aagtattctt tagcttttac ctttcttcat tctggggttc tgtctgttaa tacagccaaa 420

taaccagaat acctgtggtc atgacagact taaatcatgt ttatattatt ttcagttgcc 480

catgtggtta tttaagctgc agggattcca gcctctagtc agtggctcct ctcaaagttt 540

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tctccagtgc tttagcttgg cttacagagc ctttcag 637

<210> 96
<211> 637
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<400> 96
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aagcaggata aatgtatatg taggaggata atatccactt aaaaattaga aaagattaaa 180

ggaaagacaa atatttttg tgaaagtact attggaacac agaattgtaa ccagttttat 240

actatgtctt tactttggag gtcaagacat ctttatgaca gaggaacaga aaaaatatta 300

caatgcaatg aagaaacttg gatccaagaa acctcagaaa cccatacctc gcccagcagt 360

aagaattact tgtctccttt aatgttccaa agccatgcgt ccatatggtc aaattgagca 420

atgctctgga gcagaacata ttaggtgata tcaccaatat tgagccctaa ttataaagtt 480

catattttgc atcataattc acaacttctg cactcattag gagttaccac attccaaaaa 540

aaggaggtaa tgttctttat aatttgtgag ttgaaaactt ctagctcagg gttcctaata 600

aatacttcca aagcaaggtt cactttcctg ctaccaa 637

<210> 97
<211> 759
<212> DNA
<213> Homo sapiens

<400> 97
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gaagagaaaa aaagcacaca aaattgtttg gggtaatatg aggagggtgc acatccatcc 120

cgtatgtgga agggctttat ctacaatttt actgcattat tctttatgaa atatatatag 180

taaccttatt tctcttctct cactttctag aacaaattcc aaggaatggt ctttgatttt 240

gtaaccagac aagtctttga tatcagcatc atgatcctca tctgcctcaa catggtcacc 300

atgatggtgg aaacggatga ccagggcaaa tacatgaccc tagttttgtc ccggatcaac 360

ctagtgttca ttgttctgtt cactggagaa tttgtgctga agctcgtctc cctcagacac 420

tactacttca ctataggctg gaacatcttt gactttgtgg tggtgattct ctccattgta 480

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tctagctgat taacatggaa attaggtctg agaataataa tgcatataga tgtaaagttc 600

aacactagca tatttgaata aaaactctga aacctgggtt tattcacaaa gctaactagt 660

tagaaaccat gttaggaata ccagatttgg gaaagaggtg aagaagacag gaaataaaca 720

ttatcaggta ctctcctaat cttaaaccaa ggtcacagg 759

<210> 98
<211> 3975
<212> DNA
<213> Homo sapiens

<400> 98
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caagtttgtt gtgttcatag accttaaaaa agataaagcc atcatgtaaa gtgaaaagat 120

attatctgtt tagctgtgtt ctatgttttc cataggtatg tttctggctg agatgataga 180

aaagtatttt gtgtccccta ccttgttccg agtgatccgt cttgccagga ttggccgaat 240

cctacgtctg atcaaaggag caaaggggat ccgcacgctg ctctttgctt tgatgatgtc 300

ccttcctgcg ttgtttaaca tcggcctcct gctcttcctg gtcatgttta tctatgccat 360

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ctttgagacc tttggcaaca gcatgatctg cttgttccaa attacaacct ctgctggatg 480

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tcaccctggc agctcagtta agggagactg tgggaaccca tctgttggga ttttcttttt 600

tgtcagttac atcatcatat ccttcctggt ggtggtgaac agttacatcg cggtcatcct 660

ggagaacttc agtgttgcta ctgaagaaag tgcagagccc ctgagtgagg atgactttga 720

gatgttctat gaggtttggg aaaagtttga tcccgatgcg acccagttta tagagttctc 780

taaactctct gattttgcag ctgccctgga tcctcctctt ctcatagcaa aacccaacaa 840

agtccagctt attgccatgg atctgcccat ggtcagtggt gaccggatcc actgtcttga 900

tattttattt gcctttacaa agcgtgtttt gggtgagagt ggagagatgg atgcccttcg 960

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aataaagggg aggattgact tacctataaa acaagacatg attattgaca aactgaatgg 1200

gaactccact ccagaaaaaa cagatgggag ttcctctacc acctctcctc cttcctatga 1260

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attgtttaca gcctatgaag gtaaagtata tgtgtcaact ggacttcaag aggaggtcca 1440

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ctatttttaa cttccatatc tgccatattt ttacaaaatt tgttctagtg catttccatg 1740

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gagagataaa atttttgctc aaaaccagaa aaagaattgt aatggctaca gtttcagtta 1920

cttccatttt ctagatggct ttaattttga aagtatttta gtctgttatg tttgtttcta 1980

tctgaacagt tatgtgcctg taaagtctcc tctaatattt aaaggattat ttttatgcaa 2040

agtattctgt ttcagcaagt gcaaatttta ttctaagttt cagagctcta tatttaattt 2100

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tattttactc aatccattct tcacaagtct tggttaaaga atgtcacata ttggtgatag 2520

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caccttttact tttgcacttt taattcaaca tgagtatcat atggtatctc tctagatttc 2640

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atgtctaaaa cttgcgcaaa tataaataat gtaaaaatat aatcaacttt atttgtcagc 2760

attttgtaca taagaaaatt attttcaggt tgatgacatc acaatttatt ttactttatg 2820

cttttgcttt tgatttttaa tcacaattcc aaacttttga atccataaga tttttcaatg 2880

gataatttcc taaaataaaa gttagataat gggttttatg gatttctttg ttataatata 2940

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aaaaagaatg gtgagctacg tcattattga gccaaaagaa taaatttcat tttttattgc 3360

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aattttacaa cagactagtg catgattcac caagcagtac tacagaacaa aggcaaatga 3540

aaagcagctt tgtgcacttt tatgtgtgca aaggatcaag ttcacatgtt ccaactttca 3600

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cataaggtat taatgatata gttattgaga atttatatta actttttttt caagaaccct 3840

tggatttatg tgaggtcaaa accaaactct tattctcagt ggaaaactcc agttgtaatg 3900

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<210> 99
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic oligonucleotide

<400> 99
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<210> 100
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic oligonucleotide

<400> 100
cttcctgctc tgcccaaact gaat 24

<210> 101
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic oligonucleotide

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ggcgatgtaa tgtaaggtgc tgtc 24

<210> 102
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic oligonucleotide

<400> 102
gtgccttcag ttgcaattgt tcag 24

<210> 103
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic oligonucleotide

<400> 103
ttaggaattt catatgcaga ataa 24

<210> 104
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic oligonucleotide

<400> 104
tgggccattt ttcgtcgtc 19

<210> 105
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic oligonucleotide

<400> 105
gaaagacgca ttgcagaaga aaagg 25

<210> 106
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic oligonucleotide

<400> 106
ctattggcat gtgttggtgc taca 24

<210> 107
<211> 25
<212> DNA
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<220>
<223> Description of Artificial Sequence: synthetic oligonucleotide

<400> 107
gtgctggttt ctcatttaac tttac 25

<210> 108
<211> 25
<212> DNA
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<220>
<223> Description of Artificial Sequence: synthetic oligonucleotide

<400> 108
ttcccaactt aatttgatat ttagc 25

<210> 109
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<212> DNA
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<220>
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<400> 109
gcagtttggg cttttcaatg ttag 24

<210> 110
<211> 24
<212> DNA
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<220>
<223> Description of Artificial Sequence: synthetic oligonucleotide

<400> 110
gacacagttt caraatcccr aatg 24

<210> 111
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic oligonucleotide

<400> 111
ttagggctac gtttcatttg tatg 24

<210> 112
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic oligonucleotide

<400> 112
agcactgatg gaaaaccaaa ctat 24

<210> 113
<211> 24
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<220>
<223> Description of Artificial Sequence: synthetic oligonucleotide

<400> 113
agcccatgca gtaatataaa tcct 24

<210> 114
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic oligonucleotide

<400> 114
tccaggctga taagctatgt ctaa 24

<210> 115
<211> 22

<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic oligonucleotide

<400> 115
ctgtggcctg cctgagcgta tt 22

<210> 116
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
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<400> 116
ccaattctac tttttaagga aatg 24

<210> 117
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<212> DNA
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<220>
<223> Description of Artificial Sequence: synthetic oligonucleotide

<400> 117
aaatacttgt gcctttgaa 19

<210> 118
<211> 23
<212> DNA
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<220>
<223> Description of Artificial Sequence: synthetic oligonucleotide

<400> 118
gtacatacaa tatacacaga tgc 23

<210> 119
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic oligonucleotide

<400> 119
aggcagcaga acgacttgta ata 23

<210> 120
<211> 24
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<220>
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atccggtttt aatttcataa ctca 24

<210> 121
<211> 24
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<220>
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<400> 121
gttgagcacc cttagtgaat aata 24

<210> 122
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic oligonucleotide

<400> 122
tcacacgctc tagactactt ctct 24

<210> 123
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic oligonucleotide

<400> 123
tgcaaatact tcagcccttt caaa 24

<210> 124
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic oligonucleotide

<400> 124
ttccccacca gactgctctt tc 22

<210> 125
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic oligonucleotide

<400> 125
gcagcaggca ggctctca 18

<210> 126
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
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<400> 126
tctcccatgt tttaattttc aacc 24

<210> 127
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic oligonucleotide

<400> 127
ataatcttgc aaaatgaaat caca 24

<210> 128
<211> 19
<212> DNA
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<220>
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<400> 128
atccgggatg acctactgg 19

<210> 129
<211> 24
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<220>
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<400> 129
gataacgaga gccgtagaga ttcc 24

<210> 130
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<400> 130
agccagccat gcctgaacta 20

<210> 131
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
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<400> 131
tgtttgcttg tcatattgct caa 23

<210> 132
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic oligonucleotide

<400> 132
tgcactattc ccaactcaca aa 22

<210> 133
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
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<400> 133
aagggtgtct ctgtaacaaa aatg 24

<210> 134
<211> 20

<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic oligonucleotide

<400> 134
gtgatggcca ggtcaacaaa 20

<210> 135
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
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<400> 135
ctgggactgt tctccatatt ggtt 24

<210> 136
<211> 18
<212> DNA
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<400> 136
tttgcagggg ccaggaag 18

<210> 137
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
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<400> 137
cattgtggga aaatagcata agc 23

<210> 138
<211> 23
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<220>
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<400> 138
gcaagaaccc tgaatgttag aaa 23

<210> 139
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
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<400> 139
taatgctttt aagaatcata caaa 24

<210> 140
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
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<400> 140
ccagcgtggg agttgacaat c 21

<210> 141
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic oligonucleotide

<400> 141
cggcatgcag ctctttggta 20

<210> 142
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic oligonucleotide

<400> 142
atgtgccatg ctggtgtatt tc 22

<210> 143
<211> 23
<212> DNA
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<220>
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<400> 143
cacccatctt ctaatcacta tgc 23

<210> 144
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<400> 144
cagcaatttg gagattattc att 23

<210> 145
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<400> 145
gcagccactg atgatgataa 20

<210> 146
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<400> 146
ctgccagttc ctataccact t 21

<210> 147
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<400> 147
tacagcagaa attgggaaag at 22

<210> 148
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<400> 148
gtattcatac ctacccacac ctat 24

<210> 149
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<400> 149
ttcttggcag gcaacttatt acc 23

<210> 150
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<400> 150
taagctgcac tccaaatgaa agat 24

<210> 151
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<400> 151
ggctgaatgt ttccacaact 20

<210> 152
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<220>
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<400> 152
gttcaactat tcggaaacac g 21

<210> 153
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